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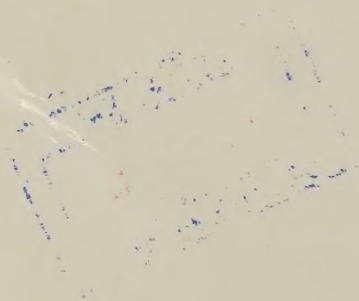
Natural Resource Conservation Education

Task Force Final Report

United States
Department of
Agriculture



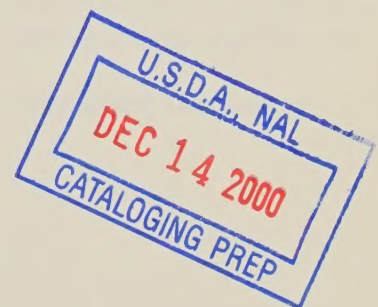
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Natural Resource Conservation Education

Task Force Final Report

Recommendations on changes and
new approaches to strengthen
Natural Resource Education



Natural Resource Conservation Education

Natural Resource Education Task Force Final Report

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Prepared by the Natural Resource Education Task Force,
Mary Jo Lavin, Chair. Edited by Kathy Bowman.

Natural Resource Conservation Education Program

Executive Summary

Background: Consider Strengthening Natural Resource Education Efforts.

A suggestion from the National Association of State Foresters (NASF) to strengthen natural resource education efforts, encouraged the Chief of the Forest Service to form a task force "to make recommendations on changes and new approaches to strengthen all aspects of the Natural Resource Education Program."

Recommendation: A Natural Resource Conservation Education Program.

A Recognized Program: The Natural Resource Education Task Force recommended establishing a Natural Resource Conservation Education Program (NRCEP) as a service-wide focused program, jointly sponsored by the USDA-Forest Service and the National Association of State Foresters. The Chief and Staff approved the establishment of this program in February 1991.

Moving from Awareness to Informed Action: The Latin roots of the word education imply "leading out." This proposed program uses structured educational experiences to "lead out" different audiences (preschool through adult) within the general public, moving them from awareness to informed actions concerning all natural resources.

Emphasizing Conservation: In support of Gifford Pinchot's emphasis on the "greatest good, for the greatest number, in the long run," this program recognizes the responsibility of the Forest Service and the National Association of State Foresters to promote the wise use, or conservation, of natural resources.

Designed For Life-Long Learning: The Natural Resource Conservation Education Program is designed as a life-long learning experience. Composed of structured experiences and activities, it will meet specific objectives for selected age groups. The initial focus will be on young adults and people in urban areas.

Program Goals: The three goals of the program are to:

- ***Increase awareness, knowledge and appreciation*** of natural resources;
- ***Promote critical thinking skills*** that enable people to recognize the complexity of resource issues and to make choices within social, political, scientific, and economic realities; and
- ***Foster the individual's responsibility*** to conserve, preserve, and wisely use natural resources.

Why Do It?

Today's Needs: The current social, political and economic situation demonstrates a particular need for an effective Natural Resource Conservation Education Program.

An Opportunity to Understand the Values Involved: The proposed program will provide the public with a fair chance to obtain an understanding of natural environments and their value to society.

A Stewardship Tool: Given today's economic and social environment, the Natural Resource Conservation Education Program will be a vital part of fulfilling Forest Service and State Forester stewardship responsibilities in the spirit of "Caring for the Land and Serving People."

Information for Informed Choices and Decisions: By making available factual and background information about natural resource conservation, the proposed program will help members of the public make informed personal choices and decisions about natural resources.

What Will Happen?

A Federal and State Partnership: The Natural Resource Conservation Education Program will build on the unique partnership that exists between the National Association of State Foresters and the Forest Service. People at every level of both organizations (from national to local) will participate in conservation education activities. These will transcend boundaries, taking place in classrooms, National and State Forests, and elsewhere. The program will function in the tradition of federal and state cooperation.

Partner-Consultants: The Forest Service and the National Association of State Foresters will build additional relationships, with others, known as partner-consultants, involving both education and conservation organizations. These partner-consultants will take an active role at the national, State and local levels in assessing needs, developing and implementing innovative programs, and evaluating their effectiveness.

A State Strategic Plan: State Strategic Natural Resource Conservation Education plans are a key component for implementing the program. In each State, the State Forester will lead the coordinated effort with Forest Service staff, educators, and other partners to prepare a State Strategic Plan for Natural Resource Conservation Education. When complete, the program will:

- **Complement** existing environmental education efforts;
- **Strengthen** partnerships with environmental education and resource management organizations;
- **Provide** local coordination through the active involvement of the State and Regional Foresters; and
- **Utilize** trained personnel.

Whom Does It Serve?

Six Key Groups: The Natural Resource Conservation Education Program will serve both urban and rural populations, and focus on six age groups:

- Preschoolers;
- Kindergarteners through second-graders;
- Third- through fifth-graders;
- Sixth- through eighth-graders;
- Young adults; and
- Adults.

Local, Regional, National and Cultural Concerns: The program will be multilingual, serve the needs of a culturally-diverse Nation, and will incorporate the needs of differently-abled audience members.

The Natural Resource Conservation Education Program is intended to address local needs and concerns as well as cultural and regional perspectives on natural resource management. While emphasizing local creativity and responsiveness, the program will require all activities to support the program goals listed above.

How Does It Work?

A Focused Effort: The Natural Resource Conservation Education Program will provide a coordinated national focal point for resource conservation education efforts. The program will use partnerships to complement and enhance existing conservation education efforts, while recognizing and encouraging innovation. The program will use the most effective means available to:

- *Meet people where they are*, in both urban and rural communities;
- *raise public awareness* of natural resource issues; and
- *increase interest* in natural resource management as a career opportunity.

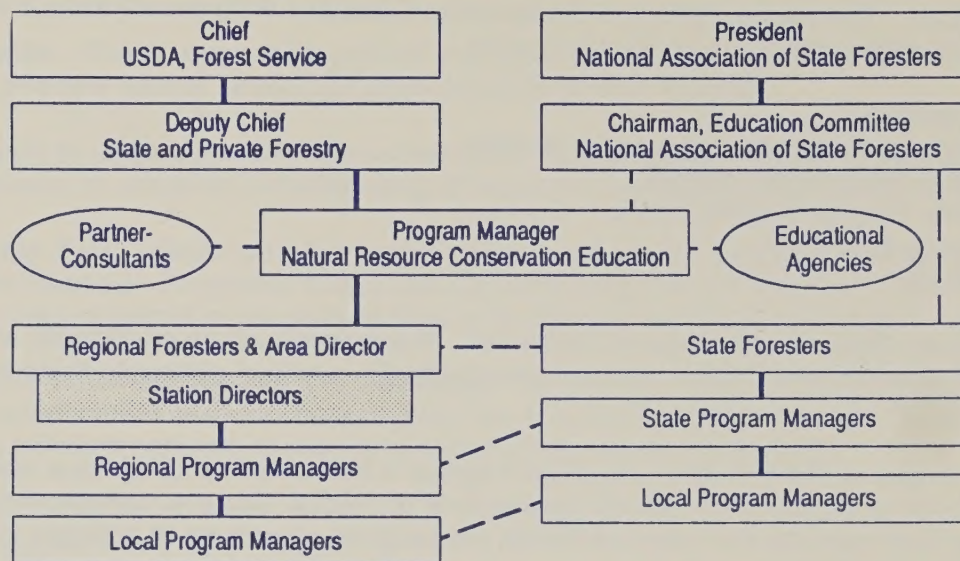
National Direction: National leadership for the program will be established within the Forest Service in State and Private Forestry. A Program Manager will work at the national level to establish program policy, foster cooperation within and among agencies, provide coordination, and develop planning and budget proposals for the program.

State and Local Implementation: The Regional Foresters, Station Directors, and Northeastern Area Director will establish the Natural Resource Conservation Education Program for their organizations through regional and local coordinators. It will be implemented by the Forest Service at the field level in concert with our main partners, the State Foresters, and other partner-consultants.

Accountability: Trained personnel will serve as the regional, State and local coordinators. Individuals responsible for managing, planning and presenting components of the Natural Resource Conservation Education program will have performance standards reflecting these responsibilities.

Incentives: Awards for innovative and effective natural resource conservation education accomplishments will be given. In addition, candidates will be nominated to receive the awards mentioned in Section 8 of the Environmental Education Act.

Delivery: The following diagram depicts the organizational flow of the Program:



How Is It Funded?

The Natural Resource Conservation Education effort must be adequately funded and staffed as a program. The Task Force recommended the program be in full operation in three years. When fully implemented, a major portion of total program funds will be allocated to local projects. The costs of this program are:

<i>FY 1991¹</i>	<i>FY 1992²</i>
\$ 285,000	\$ 2,500,000

¹ For the remaining six months of the fiscal year.

² Minimum proposed budget.

Who Served on the Task Force?

Eight individuals served on the Natural Resource Education Task Force: six from the Forest Service, one from the National Association of State Foresters, and one from Education Extension, University of Florida. These individuals included: Mary Jo Lavin (Chair), Phil Aune, Conny J. Frisch, Pamela S. Godsey, Beth Horn, Larry A. Kotchman, George W. Morgan, and Dr. Nancy A. Pywell. In addition, support to the task force was provided by Kathy Bowman, Drinda Lombardi, Sandra K. Mason, and Christine Walsh.

How Do I Find Out More?

For additional information, contact Pamela S. Godsey, Staff Assistant to the Deputy Chief for State and Private Forestry, at (202) 382-9043.

Natural Resource Conservation Education

Program Development

The following section describes how the Natural Resource Conservation Education Program was developed. The final program proposal reflects the opinions and recommendations of educators and natural resource professionals.

History

Task Force Invitation: The National Association of State Foresters (NASF) suggested that the Forest Service strengthen its efforts in natural resource education. In response, Chief Dale Robertson established the Natural Resources Education Task Force (see Appendix I) in May of 1990. The charter for the task force was prepared by a Washington Office group (see Appendix II) composed of representatives from each Deputy area, and it was approved by the Chief and Staff. The charter directed the Task Force "to make recommendations on changes and new approaches to strengthen all aspects of the Natural Resource Education Program."

Definition: In clarifying its charge, the Task Force explored possible definitions for Natural Resource Education. Building upon the Latin derivation of the word "education" (from the Latin *ex*, "out", and *ducere*, "to lead"), the Task Force defined the mission of the Natural Resource Conservation Education Program as:

"Leading out" with structured educational experiences for many public groups (preschool to adult); moving them from awareness to informed actions relative to all natural resources.

Rationale

Authorities: The Forest Service has authority to carry out environmental education programs (see Appendix III).

Recent mandates, initiatives, and programs (including the 1990 Resource Planning Act Program, the National Environmental Education Act, the Forest Service Centennial, New Perspectives, and Forest Stewardship Act) provided guidance in outlining the present and future role of the Forest Service regarding natural resource education. They enable the organization to "lead out" in a time of challenge and controversy.

This new Forest Service program will respond to existing social and economic conditions with a program of structured educational experiences addressing basic needs. In 1991 these needs are:

- To provide the public with a fair opportunity to obtain an understanding of ecosystems and natural resources as well as their value to society;
- To assist in fulfilling the Forest Service and State Foresters' mission of stewardship as expressed by the Forest Service motto: "Caring for the Land and Serving People;"
- To make available factual information on natural resource conservation so the public can make informed personal choices and decisions about natural resources; and
- To increase interest in natural resource careers for all segments of the population.

Cooperation and Coordination: The unique relationship of the USDA-Forest Service and the National Association of State Foresters provides a model partnership for natural resource

conservation leadership. Collectively and together, these organizations share responsibility for both public and private forest resource conservation and management.

Results of a 1990 Survey for Environmental Education conducted by the National Association of State Foresters (see Appendix IV) and a similar internal Forest Service survey (Appendix V) indicated the existence of many environmental education activities. However, both surveys also strongly indicated a need for a focused program to coordinate and strengthen existing efforts.

The Task Force used the results of both surveys to outline a program to build partnerships; use existing delivery systems; and encourage the forging of new partnerships. The group also recognized that a coordinated program could minimize duplication of efforts and address gaps in available materials or programs.

Internal Cooperation: A service-wide program has the potential to affect many existing Forest Service programs and personnel. Therefore, the Task Force sought input from a wide variety of interested stake holders.

Key people in Public Affairs, Recreation, and Human Resources (along with other members of the public information [see Appendix VI] and New Perspectives staffs) were asked to review the Task Force mission, and to express their opinions and concerns about the goals and objectives of the proposed program. Potential barriers and partnership opportunities were also identified and discussed at this time.

Once a program framework was developed, a panel of Forest Supervisors representing each Region of the Forest Service was invited to join Task Force members to hear reviews from educational consultants, and to react to the proposed program. (See Appendix VI.)

Comments from the Supervisors addressed both the broad spectrum of goals and mission and the practical issues of implementation and funding. It was their consensus that the program should focus on natural resource *conservation* education, as conservation (a philosophy of the greatest good for the greatest number in the longest run) is a uniquely-shared mission of both the Forest Service and the National Association of State Foresters.

In 1990, the Chief and Staff established the Public Communications and Diversity Task Forces to address pressing agency concerns. Both national task forces recommended a renewed agency emphasis on environmental education.

Revision of the Draft: The Natural Resource Conservation Education Task Force reviewed additional comments and evaluations of the proposed program from Forest Service employees, educators, resource professionals and resource-related organization staff. These recommendations were incorporated in the revised draft. (See Appendix VII.)

Program Goals: The goals of the Natural Resource Conservation Education program are:

- To increase awareness, knowledge, and appreciation of natural resources;
- To promote critical thinking skills which enable people to recognize the complexity of resource issues and to make choices within social, political, scientific and economic realities; and
- To foster the individual's responsibility to conserve, preserve, and wisely use natural resources.

Natural Resource Conservation Education

Program Operations

The following section describes how the Natural Resource Conservation Education Program will operate. The program strengthens current State, federal, and private partnerships. It is designed to enhance and complement existing environmental education programs and activities, and to build new ones.

Audience

The program is designed to include all age groups in rural and urban populations. For this reason, the program will include special development efforts to serve the needs of the multilingual, culturally diverse, and differently-abled individuals and families of the nation.

Program resources will be directed toward all audiences, but will concentrate first on young adults and urban populations as priorities. These audiences are currently under-served.

The Natural Resource Conservation Education Program is designed as a series of lifelong learning experiences. The program includes specific approaches for the following age groups:

1) preschoolers; 2) kindergarteners through second-graders; 3) third- through fifth-graders; 4) sixth- through eighth-graders; 5) young adults; and 6) adults.

Guiding Principles

The Natural Resources Conservation Education Program is national in direction but local in implementation. It is a recognized program with adequate staff and funds. The program will further the Forest Service's long-term conservation leadership goals.

All program delivery efforts must assist in achieving program goals. An overall guiding program principle is that a major portion of funds will support local projects. Accountability agreements will be developed and monitored at the local level to ensure program implementation.

The following principles will also apply. We will:

- Use factual information about natural resources as the basis for structured educational experiences;
- Recognize and encourage successful, innovative conservation education efforts;
- Complement and enhance programs through partnerships;
- Use existing delivery systems such as schools and the media;
- Create awareness and understanding of career opportunities in natural resource sciences and management;
- Acknowledge cultural diversity and regional differences in perspectives regarding natural resource management;

- Meet the people where they are;
- Use forests and grasslands as a living classroom; and
- Address local needs and concerns.

Partners

The main partnership will be between the National Association of State Foresters and the Forest Service. This relationship will serve as a **model** for the development and establishment of the local partnerships required to implement the essential elements of the program.

This partnership program will strengthen rather than duplicate existing efforts. Partners will be involved in all facets of program development, delivery, funding, and material development.

The following are key education and conservation organizations with whom partnership relationships need to be developed or reinforced. This list is not exclusive; instead, it illustrates the range of partnerships needed:

- National Education Association;
- National Forest Foundation;
- Environmental Protection Agency, Extension Service, and other federal agencies;
- National Arbor Day Foundation;
- American Forestry Association;
- Nature Conservancy
- National Wildlife Federation
- Educational programs such as Project Learning Tree, Project Wild, and Head Start;
- State departments of education and other state and local agencies;
- Organized youth groups, such as Scouts and 4-H; and
- Volunteers, such as retirees.

Organizational Structure

The success of the Natural Resource Conservation Education Program (NRCEP) depends on a major partnership between the Forest Service and the State Foresters. The organizations share a common objective of developing and establishing an effective natural resource conservation education program.

National program leadership for the Forest Service will be established within State and Private Forestry. State and Private Forestry will ensure that coordination occurs with all Deputy areas, and that all employees, regardless of functional responsibility, are involved. Specific roles and responsibilities for national, regional, and local levels of the Forest Service and State Foresters follow.

National Roles and Responsibilities: The role at the national level is to establish program policy, foster cooperation within and among the agencies, provide coordination, and develop planning and budget proposals for the Program.

- Program responsibilities will be staffed by the Natural Resource Conservation Program Manager under the direction of the Deputy Chief for State and Private Forestry.
- The Program Manager will identify existing programs and materials both within and outside of the Forest Service.
- In consultation with the National Association of State Foresters (NASF), the Program Manager will coordinate with other federal agencies and interest groups at the national level.
- The Program Manager and the National Association of State Foresters will encourage new and innovative programs, seek out partnerships and cost sharing arrangements, assist in the identification of research needs, and reward outstanding efforts of national significance.
- The Program Manager will maintain program quality control, accountability, establish coordinated program reviews, and maintain a clearinghouse of natural resource conservation education programs and materials.
- The Program Manager will work with partner-consultants to assess needs, establish standards and guide the development and implementation of innovative programs.

Regional, Area, and State Roles and Responsibility: The roles and responsibilities at the Regional and State level are similar to the national roles. The Regional Foresters, Station Directors, the Northeast Area Director, and the State Foresters will establish the Natural Resource Conservation Education Program for their respective organizations.

- Responsibilities will be assigned as specific duties to designated staff. Shared services will support the program and minimize the duplication of efforts for Regions and Stations.
- Regional Foresters, Station Directors, and State Foresters will develop program priorities and award competitive grants.
- The State Forester, in cooperation with the Regional Forester, educators, and other partners, will develop interdisciplinary strategic plans for Natural Resource Conservation Education Program activities in his or her State.
- Regional and State Program accountability will be established and implemented.

Local Roles and Responsibilities: The program will be implemented at National Forests, Research Laboratories, and local State Forestry offices. Program implementation will require effective coordination with local school boards, educators, state directors of Project Learning Tree, PTA members, Scout leaders, 4-H programs, extension specialists, and the many other individuals and groups interested in natural resource conservation education.

- In the Forest Service, the program will generally be accomplished at the National Forest, Research Laboratory, and Ranger District levels as part of collateral duties recognized, funded, and maintained as part of position descriptions and performance standards.
- Within both State and Forest Service organizations, the local office will develop proposals for cost sharing, encourage and reward successful programs, facilitate partnerships, and maintain accountability for local program activities.

Human Resources: The Natural Resource Conservation Education Program will be directed at the national level by a Program Manager, and will require full-time program coordinators and support staff at the national and regional office levels. The State Foresters will be required to develop a coordination capability as needed to implement the program.

- The national Program Manager and Regional program coordinators will require knowledge, skills and abilities in communication, education and natural sciences. They will also require skills necessary for innovation, program management, and maintenance of quality control. These positions will provide the opportunity to bring new people with fresh ideas into the organization.
- The Task Force recommends that Forest Service representatives serve on the Environmental Education Task Force established by the National Environmental Education Act (Appendix XII), and also on the Federal Interagency Environmental Education Coordinating Committee.
- To ensure that the Natural Resources Conservation Education Program reflects a balance of environmental education perspectives, the Program Manager will actively involve partner-consultants in a two-way relationship. Communication will be on-going. Partner-consultants will provide a link to other programs and potential partners.
- The partner-consultants will assist the Program Manager to assess needs, establish standards, and guide the development and implementation of an innovative program consistent with the program goals.

Educational Opportunities

Potential Educational Opportunities, Experiences, and Techniques: Different instructional opportunities, experiences and techniques are most effective at different levels, where they can reflect specific audiences and resources. Following is a partial listing of educational opportunities, experiences, and techniques available at the national, regional, and local levels.

Some of these tools may be used by other programs. The Natural Resource Conservation Education program would use them as part of structured educational experiences.

National: At the national level, we will seek opportunities to reach national audiences. These efforts will build on experiences and techniques that are national in scope. Examples include:

- TV programs, such as Cosby, Mr. Rogers, Discovery, or Sesame Street;
- Disneyland/Disney World;
- Existing program inventory and access (NRCE Clearinghouse);
- Interagency internships;
- Multimedia programs;
- Scholarships;
- Conferences;
- Financial assistance;
- Resource materials for educators;
- Summer jobs for teachers;
- Cable TV (see example in Appendix VIII); and
- Family camps.

Regional: Regional programs are focused to regional audiences and utilize regional resources.

- Summer jobs for teachers;
- Elderhostels;
- Interagency internships;
- Multimedia programs;
- Displays for State and county fairs, and shopping malls;
- Eco-Vans;
- Scholarships;
- Conferences;
- Financial assistance;
- Teacher kits;
- In-service, preservice training;
- Ecosystem boxes;
- Resource materials for educators;
- Cooperative education positions;
- Family camps;
- Classroom credit for Natural Resource Conservation Education
- Program activities; and
- Urban tree planting opportunities.

Local: Local programs will be tailored to local audiences and build on local initiative. Opportunities include:

- Speakers bureaus;
- Summer jobs for teachers;
- Interpretive centers;
- Elderhostels;
- Interagency internships;
- Urban Ranger Districts (work experience);
- Family camps;
- Day camps;
- Displays for State and county fairs and shopping malls;
- Human Resource programs (e.g., YCC, Job Corps, and Volunteers);
- State and Forest Service residential facilities to deliver programs;
- Forest Host Program;
- Scholarships;
- Teacher kits;
- In-service, preservice training;
- Ecosystem boxes;
- Resource materials for educators;
- Urban tree-planting opportunities;
- Classroom visits; and
- Co-operative education experiences.

Program Evaluation: Measuring Both Process and Outcome

Program evaluation will be meaningful and measurable in program delivery and content. It will consistently provide feedback through quality accomplishments and personal satisfaction. Teacher/administrators will have the flexibility to make changes, and will document why the changes were necessary.

Quantifiable Measurements: In measuring the outcome, the program:

- Requires narratives, photos, and other documentation;
- Seeks recommendations through a feedback critique process that includes comments from teachers, administrators, parents and students for suggested changes in delivering the program;
- Reevaluates successes and failures in meeting program goals and objectives each year; and
- Uses the existing Human Resource Programs Accomplishment Report as a model for reporting accomplishments.

Program Components: The recommended educational program is designed as a life-long learning experience. It begins with specific educational objectives for selected age or grade levels (see the curricula charts that follow and Appendix X). Objectives and messages in each curriculum are tied to program goals and guiding principles. As age and grade levels increase, the material in each curriculum deals with increasingly complex concepts.

Program Components

Proposed Curricula (Appendix VIII)

Preschoolers
<p>Focus: Trees</p> <p>Objective: To introduce the role of trees in the natural world.</p> <p>Messages:</p> <ul style="list-style-type: none"> - Being outside can be fun. - Trees provide many useful products and provide many services. - Trees are part of a healthy environment. - I am responsible for a healthy environment. - Trees, like people, are living things and have a life cycle.

Kindergartners Through Second-Graders
<p>Focus: The Natural World</p> <p>Objective: To explore the components of a natural environment and discover how plants and animals—and people—work together.</p> <p>Messages:</p> <ul style="list-style-type: none"> - Exploring the natural world can be fun. - The natural world is made of living and non-living things which form ecosystems. - All living things need food, water, shelter, and space in order to live and renew themselves. - Our personal environments are part of an ecosystem. - We are responsible for caring for things in our environment. - Our actions affect the natural environment.

Third- through Fifth-Graders
<p>Focus: Natural Communities</p> <p>Objective: To discover the variety of natural communities on this planet, and learn how they function.</p> <p>Messages:</p> <ul style="list-style-type: none"> - Exploring the communities around us can be fun. - Around the world there are many communities in which humans live, work and play. - People of different cultures value and use land and other resources differently. - There is conflict and competition within natural communities. - All parts of our ecosystem are interrelated. - Because natural resources are limited, we must learn to make decisions which conserve natural resources and reduce our individual impacts on natural systems.

Sixth- Through Eighth-Graders
<p>Focus: Ecosystems</p> <p>Objective: To explore the complexities of communities and ecosystems.</p> <p>Messages:</p> <ul style="list-style-type: none"> - There are exciting discoveries and careers in natural resources. - Humans are part of local, regional and global ecosystems. - Ecosystems are unique and diverse, containing renewable and nonrenewable resources. - Good natural resource management sustains ecosystems. - The products we want from our natural resources require us to make decisions which may require trade-offs.

Young Adults
<p>Focus: Natural Resource Management</p> <p>Objective: To empower young adults to develop and practice a personal natural resource management ethic.</p> <p>Messages:</p> <ul style="list-style-type: none"> - I can find peace and comfort in the out-of-doors. - Actions based on my personal convictions can make a difference in my life and world. - Diverse natural resource philosophies result in conflicting resource decisions. - Each natural resource decision results in environmental, economic, and social consequences. - A natural resource career is an exciting choice.

Adults
<p>Focus: Natural Resource Experiences</p> <p>Objective: To enable adults to identify problems, collect information, understand resource conditions and trends, form opinions, draw conclusions, and make informed natural resource decisions.</p> <p>Messages:</p> <ul style="list-style-type: none"> - Forests provide multiple benefits including opportunities for quality outdoor recreation. - The natural resource decisions we make as a nation today will create the world our children live in tomorrow. - We must work together in partnership to balance the multiple demands for environmental protection, economic viability and public use of our nation's natural resources. - There is a wealth of interesting information on natural resources and the history of natural resource management.

Natural Resource Conservation Education

Program Implementation

This section describes how the Natural Resource Conservation Education Program will be put into effect. The Natural Resource Conservation Education Program contains structured educational experiences relevant to all natural resources. It is designed to move people from awareness to informed actions.

Internal Distinctions

The **education** program will be distinct from--though related to--the **interpretation** element of the Recreation program, and the **public communication** portion of the Public Affairs program. Both areas provide useful and relevant information about natural resource conservation, but neither provides the **structured series of age-focused experiences** that characterizes **education**.

While other federal and state agencies have environmental education mandates, the Forest Service and the National Association of State Foresters together are in a special position to bring together the best information about specific natural resource problems and issues. Coordination and cooperation between the three areas (interpretation, communication, and education) will complement and strengthen each program.

Internal Cooperation

National Level: The Natural Resource Conservation Education Program Manager will consult with the National Association of State Foresters, internal Forest Service program staff, and partner-consultants to develop a comprehensive inventory of existing natural resource conservation education programs at the national level. The Program Manager will work with Public Affairs and Interpretive Services staff to assess the appropriate means to communicate Natural Resource Conservation Education messages.

Successful projects (such as Urban Treehouse) will be shared through a national program newsletter and a symposium to be held the second year. All programs meeting Natural Resource Conservation Education goals will be incorporated into a national Natural Resource Conservation Education Program Clearinghouse, which will be available on a computer (CD-ROM) disk.

The Program Manager will also conduct, in consultation with others, an assessment to determine national development projects which are needed. The Task Force recommends that initial projects focus on young adults and urban audiences.

Regional Level: Natural Resource Conservation Education Program coordinators will work in consultation with State Foresters to:

- Determine Natural Resource Conservation Education Program priorities at the regional and State levels;
- Develop budget proposal;
- Develop criteria for cost sharing; and
- Solicit proposals for financial assistance.

Program activities will focus on regional issues and differences, and incorporate projects identified in individual State strategic plans for Natural Resource Conservation Education Program activities.

Coordinators will work cooperatively with communication and interpretation staff people to develop Natural Resource Conservation Education material.

External Cooperation

Forest Service representatives will serve on key task forces and committees (see the Human Resource section under Program Operations) to support existing natural resource education efforts, and to develop comprehensive programs with a national focus, consistent with Natural Resource Conservation Education Program goals.

The Forest Service and the National Association of State Foresters will continue support for cosponsored programs such as Project Learning Tree and Woodsy Owl. They will also identify existing and future program needs.

The Forest Service and the National Association of State Foresters will look for opportunities to cooperate with agencies (such as the Extension Service, Soil Conservation Service, Environmental Protection Agency, and National Park Service) that have existing programs, or which are considering development of new programs.

These projects will be consistent with Natural Resource Conservation Education Program goals and guiding principles. Each curriculum will be guided by messages established for specific age groups.

The Natural Resource Conservation Education Program encourages new partnerships such as that with Tele-Communications, Inc. (TCI-Cable TV) for a Centennial television series. This series will include the history of natural resource management in response to the changing needs of society throughout the last century. (Note: See Appendix IX for an adult education proposal that also addresses natural resource conservation history).

In addition, successful programs such as Urban Treehouse will serve as models for program partnerships with a national focus.

Internal Staff Development

As most natural resource managers and scientists in the Forest Service and the National Association of State Foresters are trained primarily in technical fields (forestry, engineering, etc.), Natural Resource Conservation Education program providers will need training in educational techniques to translate technical information into educational concepts.

Training or expertise provided will include learning theories and styles, education techniques for teaching both adults and children, school delivery systems, and information about how best to use multimedia and technology. Feedback will be provided for program providers. Training programs may also be developed to enhance the educational skills of program providers.

Marketing:

Internal (Forest Service): The Natural Resource Conservation Education Program will be presented at the next Regional Foresters and Station Directors meeting. The Executive Committee and the chairs of the Standing Committees of the National Association of State Foresters will be included in this meeting.

A video with the Chief and the president of the NASF will be produced for internal marketing. It will show their support of the Natural Resource Conservation Education Program, and will also clearly communicate roles and responsibilities.

The video will be used by each Regional and State Forester to "take the message home" to the Regions and States. It will be distributed to Regional staff and Forest Supervisors. In addition, the message will further be carried to the field-level organizations by management teams.

A brochure will be developed to promote the program's goals and guiding principles. These will be distributed to all levels of the Forest Service and the State Forester organizations.

Members of the Natural Resource Education Task Force will be available to assist in program presentations to Region, Area, and Station management team meetings.

External: The Washington Office (WO) of the Forest Service will brief all other federal agencies and national organizations dealing with environmental education about the Natural Resource Conservation Education Program. A special presentation will be made at the annual meeting of the National Association of State Foresters. The Washington Office will also seek to establish or enhance partnership relationships.

Regional and State Foresters will brief state and local entities which deal with environmental education.

The Washington Office will also distribute the internal promotional brochure (modified if necessary) outside the program.

Accountability and Incentives

Accountability and incentives are essential for successful program implementation. In addition, a simple reporting system will be developed to track goal accomplishment and funding use.

(The following text contains many references to the Forest Service and the National Association of State Foresters. For simplification, the term "main partners" in the next paragraphs will represent both agencies.)

The following actions will help assure program implementation:

- Adding Natural Resource Conservation Education as part of an appropriate performance standard for Regional Foresters, and Area and Station Directors;

- Having both main partners jointly develop accountability standards for the program;
- Recognizing Natural Resource Conservation Education as part of performance standards for individuals assigned collateral education duties;
- Having both main partners take a "cooperative lead" in *awarding* the "Gifford Pinchot" Environmental Education award mentioned in Section 8 of the Environmental Education Act;
- Having both main partners *identify appropriate candidates* for awards mentioned in Section 8 of the Environmental Education Act, with each *assuring* that adequate support documentation is included in nomination material; and
- Having both main partners cooperatively establish an internal award system for Natural Resource Conservation Education. This will include awards from the Chief of the Forest Service, and from the Regional and State Foresters (individually).

First Implementation Steps

Natural Resource Conservation Education Program participants and staff will learn from and model upon the best communicators in the country.

These administrative and program actions will take place in Fiscal Year '91.

Administrative Actions: We will:

- Brief Regional Forester and Directors, key congressional representatives, other federal agencies, and potential partners;
- Hire a program manager;
- Initiate working relationships with partner-consultants;
- Establish partnerships with the Environmental Protection Agency (EPA), Extension and other federal agencies. Forest Service representatives will also serve on the Environmental Education Task Force established by the National Environmental Education Act;
- Establish a relationship with the National Forest Foundation (NFF) to determine how the Foundation's funding might support Natural Resource Conservation Education programs;
- Assess additional fiscal authorities; and
- Tie into existing natural resource education networks.

Program Actions: We will:

- Reach out to the educational community;
- Develop the video and brochure used to market the program. The promotional brochure will include the goals and guiding principles, and will be distributed to a wide audience (see Marketing);

- Carry out commitments to Scouting organizations;
- Develop an inventory of existing Natural Resource Conservation Education programs and curricula for the national clearinghouse;
- Highlight successful programs in a national newsletter;
- Plan a national Natural Resource Conservation Education symposium showcasing successful programs to be held in 1992; and
- Develop a TCI-Cable TV/Natural Resource Conservation Education program for the Centennial Celebration, including a history of natural resource management.

Natural Resource Conservation Education

Budget Proposal and Approved Budget

	<i>Budget Proposal</i> Thousand Dollars	<i>Approved Budget</i> Thousand Dollars
Fiscal Year 1991 (Six Months)		
Initial staffing	\$125	\$125
Promotional video and brochure	25	25
Development of Service-wide projects (TCL, Girl & Boy Scouts)	50	50
First-year marketing and cooperation	20	20
Recognition of current efforts by FS, State Forestry, & Cooperators	65	65
	<u>\$285</u>	<u>\$285</u>
Fiscal Year 1992		
Forest Service	\$1,500	\$250
State Foresters	2,500	250
Development of Service-wide projects (TCL, Girl & Boy Scouts)	500	500
Challenge/cost-share for internal (FS) NRCE projects	2,500	500
Challenge/cost-share for internal (State Forestry) NRCE projects	2,500	500
Challenge/cost-share for projects by other partners	1,000	500
	<u>\$10,500</u>	<u>\$2,500</u>
Fiscal Year 1993 and Beyond		
Forest Service	\$1,500	
State Foresters	2,500	
Development of Service-wide projects (TCL, Girl & Boy Scouts)	1,000	
Challenge/cost-share for internal (FS) NRCE projects	3,000	
Challenge/cost-share for internal (State Forestry) NRCE projects	3,000	
Challenge/cost-share for projects by other partners	5,000	
	<u>\$16,000</u>	

*Region, Area and Station may supplement NRCEP allocation with other funds.

Note: For a discussion of how grant money will be allocated on a State-by-State basis, see the Roles and Responsibilities discussion. See the discussion of Accountability and Incentives for an overview of how recognition efforts will be handled.

Appendix I.

Natural Resource Education Task Force

Mary Jo Lavln (Task Force Chair), Deputy Regional Forester,
Pacific Northwest Region, USDA-Forest Service.

Phil Aune, Research Program Manager,
Pacific Southwest Station, USDA-Forest Service.

Conny J. Frisch, Waldport District Ranger,
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Pamela S. Godsey, Staff Assistant to the Deputy Chief for
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Northern Region, USDA-Forest Service.

Larry A. Kotchman, Chair, National Association of
State Foresters Conservation Education Committee;
State Forester, North Dakota.

George W. Morgan, Director, Ouachita Civilian Conservation Center,
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Appendix II.

Task Force Charter and Charter Committee Members

Natural Resource Education Charter

Introduction/Background

The time is ripe for the Forest Service to revitalize a program of natural resource education, a program with national initiatives and highlighted local activities. We envision:

- A program by which many of this Nation's students will develop skill, in gathering, understanding, and evaluating information by using the forest ecosystems as the foundation for understanding the interdependence of the environment and people's daily lives.
- A program that addresses the needs for adult natural resource education.
- A program that recognizes the opportunity to inform an ever growing urban constituency limited in first-hand experience with America's natural resources.
- A natural resource education program built on the foundation of the Chief's six-point working agenda.

Historical Perspective

Conservation education associated with the Forest Service began in the 1930's with the CCC, when basic principles of our environment were learned through work projects such as soil stabilization, tree planting, and thinning. It was in this period that a Forest Service employee became known as the "Ambassadors of trees" as she mobilized women and children to learn about the forest environment and to plant trees to ensure forests forever.

In the 1960's, Forest Service employees started going into classrooms and explaining how trees grow and discussing other conservation issues.

In 1968, Edward P. Cliff, then Chief of the agency, directed that more emphasis be placed on environmental education. He was convinced that protection and wise use of the Nation's natural resources would only be possible if the Forest Service had the understanding and support of the public. Environmental training teams were sent out over the country to teach thousands of educators, Garden Club members, Forest Service personnel and others about the principles of environmental education and how to teach it. The early 1970's were the heyday for environmental education in the Forest Service.

Currently, all regions of the country have some level of an environmental education program sponsored by the Forest Service. These are largely the result of individual initiatives carried on by a few dedicated employees. The vehicles used include workshops, speakers bureaus, conservation camps, conferences and interpretive services programs. The Forest Service leverages the limited funds spent for environmental education by building strong cooperative agreements and partnerships with States, universities and conservation organizations. One of our stronger cooperative efforts is our involvement as an associate sponsor of Project Learning Tree.

Throughout its history the Forest Service has undertaken a number of education programs to promote understanding and knowledge in many areas. These programs have been used, for example, to emphasize research results and activities, cooperative forest fire prevention, visitor

information and interpretive services, environmental pollution and litter, youth conservation work and environmental awareness, and environmental education.

Except for the environmental education program, which is broad in scope and focuses on resources in general, most of the efforts have been used to achieve specific purposes and objectives. We have lacked a focused, pro-active comprehensive Natural Resource Education program for a number of years.

Goals and Objectives

We propose to educate people on:

- Forest and Rangeland Ecology
- The interrelationship of natural environment and people.
- The enjoyment, conservation and wise use of natural resources.

Scope and Approach

The Chief of the Forest Service will establish a team to make recommendations on changes and new approaches to strengthen all aspects of the Natural Resource Education program. In addition, the Chief will establish a board of advisors as resources to the team.

The team will recognize the historical evolution of the environmental education program and consider today's changing social, political, demographic and economical values in the development of a new Natural Resource Education program.

The team will consist of members representing a range of interests and professions and will be selected based upon knowledge of conservation, forest ecology, education and experience with Forest Service resource management. The Team will be charged to:

- Review current mandates, Congressional direction, USDA and Forest Service mission and/or programs.
- Identify specific laws, executive orders, policies and other directives that establish program constraints.
- Review current Natural Resource Education programs now being administered by other agencies, schools, and industry. Develop a Natural Resource Education program that will strengthen but not duplicate current programs in educating students and adults on forest ecology and the interrelationships of people's actions and the forest environment.
- The benefits and disadvantages of developing this program in cooperation with USDA agencies such as the Soil Conservation Service and Extension Service and other agencies and organizations will be evaluated.
- The use of interpretative programs, partnerships, alliances, Earth Day and other approaches to educating city, urban, and rural students and adults on forest ecology and the interrelationships of people's actions will be considered in the team's program proposal.
- Develop organizational recommendations, funding sources/needs and marketing techniques to implement the team's proposal and alternatives for funding levels.

- Develop as part of the Natural Resource Education program a significant outreach to all segments of American society to raise environmental sensitivity of all elements and to ultimately help in our efforts of attracting a diverse workforce.
- Build on or support "New Perspectives in Forestry" in providing increased awareness and understanding of forest ecosystems by Forest Service personnel.
- Identify a mechanism to monitor success of the program and provide feedback to management. Included in this will be the criteria that identifies what is a successful forest resource education program.
- The program proposal along with major elements and alternatives will be presented to the Chief and Staff in December 1990.

Charter Committee Members

Pam Godsey, State and Private Forestry (Chair)

George Castillo, Administration

Don Foth, National Forest System

Mikel Shilling, Programs and Legislation

Bill Sommers, Research

Appendix III.

Authorities

1. **Department of Agriculture Organic Act of 1962 (7 U.S.C. 2201).** This act authorizes establishment of a Department of Agriculture and directs that its general design and duties be to "diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of the word".
2. **Solicitor's Opinion 4088 (1942).** In this opinion, the Solicitor ruled that information may be disseminated through exhibits, motion pictures, radio broadcasts, or other media which are found to be administratively expedient, provided such information relates to the authorized activities of the Department, and it is administratively determined that such dissemination of information is reasonably requisite or materially advantageous in the promotion and development of such Department activities.
3. **Forest and Rangeland Renewable Resources Research Act of 1978 (16 U.S.C. 1600 (note)).** This act authorizes the Secretary of Agriculture to implement a comprehensive program of forest and rangeland renewable resources research and dissemination of the findings of such research.
4. **Cooperative Forestry Assistance Act of 1978 (16 U.S.C. 2101, July 1, 1978).** This act authorizes cooperative efforts in respect to non-Federal forest lands and provides for coordination with State Foresters in management and planning assistance, and for transfer of technological knowledge based on forest research findings.
5. **Forest Management Act of 1976 (16 U.S.C. 1600).** This act establishes broad land management guidelines, and directs the Secretary to provide for public involvement in the planning process.
6. **Environmental Education Act of 1990.** This act authorizes the Environmental Protection Agency to develop and support a program of environmental education. In consultation with others, EPA is instructed to develop curriculum, design information, hold conferences, manage a Federal grant assistance program and environmental internship program. In the act, the Forest Service is recognized for its skill and experience in natural resource education. The act directs that a representative from the Department of Agriculture serve on the Environmental Education Task Force.
7. **Forest Stewardship Act of 1990 or Farm Bill.** Under the Urban and Community Forestry Assistance Program, the Secretary, in cooperation with State Foresters, State Extension Directors and interested members of the public, including nonprofit private organizations, shall implement a program of education for urban and community forest resources. As part of the Forest Stewardship Program, the Secretary is authorized to provide education and related assistance to State forests, including financial assistance to other State and local natural resource entities, and land grant universities to deliver information to nonindustrial private landowners.

Appendix IV.

National Association of State Foresters 1990 Needs Survey for Environmental Education Materials

The purpose of this survey was to assess the need for environmental educational materials within state forestry organizations and those agencies with which we are closely associated. A total of 145 responses were collected.

1. **Are there enough environmental education material resources available to your agency or educators on forest resources?**

	All Reponses	Educators	Natural Resource Agencies
Yes	27%	31%	38%
No	73%	69%	62%

2. **Conservation education material should be targeted to: K-4, Middle School, Junior High, or High School.**

	All Reponses	Educators	Natural Resource Agencies
K-4	29%	31%	32%
Middle School	39%	39%	37%
Junior High	21%	14%	19%
High School	11%	16%	12%

3. **Does your agency produce any environmental educational materials other than fire prevention and technical bulletins?**

	All Reponses	Educators	Natural Resource Agencies
Yes	62%	54%	59%
No	38%	46%	41%

4. **If you had to choose one format for conservation education, which would you prefer?**

- a. printed material: text, single sheets, workbooks
- b. audio-visual material: slide programs, video tapes, movies
- c. teachers kits: combinations of audio-visual, posters, and printed material
- d. computer games

	All Reponses	Educators	Natural Resource Agencies
Printed	11%	10%	21%
Audio-visual	14%	7%	3%
Teachers kits	72%	73%	76%
Computer Games	3%	10%	0%

5. **Does your agency, school, or organization use Project Learning Tree Workshops?**

	All Responses	Educators	Natural Resource Agencies
Yes	71%	66%	81%
No	29%	34%	19%

6. **How many Project Learning Tree workshops was your agency, school, or organization involved in last year? 0, 6-10, 11-20, or 21-40+**

	All Responses	Educators	Natural Resource Agencies
0	46%	61%	34%
6-10	31%	21%	25%
11-20	9%	14%	7%
21-40+	12%	4%	34%

7. **Does your agency, school, or organization use National Arbor Day teaching materials?**

	All Responses	Educators	Natural Resource Agencies
Yes	56%	34%	66%
No	44%	66%	34%

8. **Do you see a need for the National Association of State Foresters to produce environmental education material for purchase and use by state forestry agencies, schools, or organizations?**

	All Responses	Educators	Natural Resource Agencies
Yes	77%	59%	78%
No	23%	41%	22%

9. **Considering your personal experience with budgets, purchasing, and use of materials, list items you would most likely purchase. You may use question 4 as a reference guide remembering items a through d are increasingly expensive.**

	All Responses	Educators	Natural Resource Agencies
Printed	41%	76%	35%
Audio-visual	29%	6%	37%
Teachers kits	27%	18%	24%
Computer games	3%	0%	4%

10. **Please use this opportunity to elaborate on any question, clarify your answers or identify additional issues for conservation education.**

A total of 52% of the respondents chose to make additional comments. There was quite a variety in the number of individual responses and comments. Some of the comments were spillovers from questions 8 and 9, and clarification on question 4. In skimming the material looking for key words and phrases, 17% of the comments included a specific request for posters and 33% made reference to the Project Learning Tree/Project Wild programs and to Nature Scope.

In question 2, there was a strong feeling of clarification that all age groups should be targeted for environmental education material. A number of people implored us not to forget adults. There were also concerns in the comments about the quality of the material. There were suggestions for lesson plans on recycling and on stewardship. In addition, there were several complimentary comments from teachers concerning the various natural resource agency personnel with whom they had worked.

Appendix V.
Forest Service Survey and Summary

Natural Resource Education Survey

***Report
August 1990
Washington, D.C.***

prepared by

**Craig Austin, LMP, Gifford Pinchot National Forest
Thom Corcoran, Public Affairs, Pacific Northwest Region
Anne Heisler, NRE Coordinator, Pacific Northwest Region**

for the

***National Task Force
on
Natural Resource Education***

chaired by

Mary Jo Lavin, Deputy Regional Forester, Pacific Northwest Region

Contents

**Summary
NRE Survey Questions
Survey Report
Who Responded**

Summary

The National Task Force on Natural Resource Education, formed by Chief and Staff in May 1990, met on June 26-28. The attached survey was circulated throughout the Forest Service in order to gather information on the state of NRE within the agency. Responses were received from all 9 Regions, several Research Stations, and the Washington Office. Though initially intended for use by Regional Offices only, responses were received from many National Forests and Ranger Districts. Over 100 responses were analyzed for this report.

Given the number of responses and their differing levels of detail, a purely statistical analysis was not possible. However, we have attempted to provide an objective summary of our findings, along with those conclusions which were obvious, if not absolutely quantifiable, to the analysts. In summary, there is commitment to Natural Resource Education at all levels within the Forest Service. All respondents indicated that one of the agency's primary duties should be educating the public, though most felt there is work to be done, especially where funding and staffing are concerned.

The one recurring theme echoed in almost every response was that Natural Resource Education is vitally important. From the Washington Office to the Ranger District, respondents to the survey indicated that the agency has a desire to perform NRE activities. One survey contained the recommendation that the Forest Service strive to **"regain the lead in environmental education it held in the 1970s."**

Audience

There were patterns in target audience. For instance, Regional Offices and National Forests tended to target school-age children and their teachers, scout groups, churches, and project-specific audiences. The Washington Office primarily aimed its education activities at the Forest Service itself, other federal agencies, and Congress. Research tended to target post-graduate students, science teachers, and forest products industries.

Budget and Staffing

Overall, budgets and FTEs were larger at the National Forest level than at either the Regional Office or Ranger District levels. This may be due in part to different accounting methods--some Forests counted salaries and included all public affairs or interpretive funds in their NRE program.

Partners

Partnerships and cooperative ventures are widely used by the agency to conduct NRE activities. Private industry, non-profit organizations, and other federal and state agencies all cooperate with the Forest Service in education. Challenge Cost-Share agreements help pay for many of the programs carried out across the country. In many cases, sharing costs is the only way the unit can have a program.

Each Region mentioned several projects that it was particularly proud of (detailed in the enclosed material). These ranged from small interpretive activities to large-scale, ambitious cooperative ventures.

Funding

One purpose of the survey was to determine obstacles to NRE within the agency. The primary barrier mentioned was funding. A large percentage of the respondents, especially from Districts, called for more support when budgets are formulated. Some indicated that the agency is saying education is important, but is not following through with necessary money or staffing. This is an

especially important point because, based on the survey, most of the NRE activities take place at the District level with little funding and often on a volunteer basis.

Definitions

Two other obstacles to Natural Resource Education were obvious to the analysts. First, there is a lack of consistency between Washington, the Regional Offices, the National Forests, and the Ranger Districts as to the definition of Natural Resource Education and what is included in it. The terms "conservation education" and "environmental education" were used interchangeably by the respondents, and some included all Public Affairs or interpretive activities in NRE.

Communication

Second, most regions experience a breakdown in communications between the Regional Office, the Forest, and the District concerning *what is actually happening* in Natural Resource Education. Often the Regional Office is unaware that the Forests have NRE programs; one Region stated that **"there is no program at any of the Forests in this Region,"** which is not reflected by the responses from the Forests and Districts. Only one region seemed to be aware of the NRE programs on the districts.

Natural Resource Education Survey Questions

The National Task Force on Natural Resource Education will be meeting June 26-28. At that time, we would like to have an understanding of the size of the Forest Service's effort in Natural Resource Education (NRE) (environmental education, interpretive programs, and public outreach).

Please take a few minutes to respond to the following statements about your unit's programs that involve Natural Resource Education principles. Return NO LATER THAN JUNE 15 to M.Lavin:R06A (BOX 3623, Portland, OR 97208 or FAX: 503 326-5044).

1. Describe **briefly** the NRE program in your unit of responsibility.
 - Audience:
 - FTE's:
 - Budget:
2. Identify any cooperative/partnership/interagency activities (including volunteer). Indicate which of these have formal agreements.
3. Suggest where you think Natural Resource Education in the Forest Service should be heading.
4. Describe briefly two or three of the BEST projects going on now in your unit that the National Task Force should know about.

Name: _____

Title: _____

Unit: _____

DG Address: _____

Telephone # _____

Survey Report

1. Describe briefly the NRE program in your unit of responsibility.

Region 1

Regional Office

Audience: The primary audience has been elementary school (K-6) classes, but the region has also worked with teacher workshops and adult groups. There has been little organizational involvement. This has recently changed with the designation of the Lolo National Forest as a pilot Forest for the watchable wildlife program.

FTEs: The Lolo has a full-time watchable wildlife position, working with conservation education activities. The Regional Office estimates at least two more full person-years of effort which are being accomplished across the region.

Budget: No one is specifically budgeted for conservation education activities. However, several are involved in the watchable wildlife program and spend approximately one half person-year in activities directly and indirectly involved with conservation education and interpretation. They have identified activities that they would like to pursue and would require a budget in this unit of approximately \$25,000.

Forests

Audience: Forests and Districts had different ideas of who their audience was. Most were relatively close to the RO's idea, school-age children (K-12), but some units dealt with audiences as narrow as grades 3-6 and as wide as the general public. Some tailored their presentations to specific audiences (recreation groups, 4H clubs, scout groups, etc.). One unit targeted its education program specifically at teachers, not students or the general public.

FTEs: Most units had no full-time personnel responsible for conservation education. In most cases, it was part of one person's job, usually but not always a public-affairs type. Training and experience varied greatly. In many cases, a seasonal employee or volunteer had the responsibility; however, in at least one case, a retired university professor conducted the environmental education program as part of his job. Some Forests had personnel at the SO level who conducted programs; most District programs were done on a volunteer or part-time basis.

Budget: Most units had no funds allocated to education programs; what money they used came from project dollars. Those units that could track budgets reported from \$924 to \$230,000 per year. The numbers are not reported consistently, however, and so are probably not very useful.

Region 2

Regional Office

Audience: Primarily educators

FTEs: 0.25

Budget: Covers salary and and small contributions to cooperative efforts.

Forests

Audience: Teachers, students, public, government agencies

FTEs: Zero to two

Budget: Zero to \$30,000.

Region 3

Regional Office

No response.

Forests

Audience: Two units, the Coconino and Kaibab National Forests, responded to the survey. Their responses were for the most part very similar, indicating that there is some regional consistency there. Both Forests target schools, interested groups, other agencies, and Forest visitors.

FTEs: Coconino, 0.25 FTEs. Kaibab, 0; the Kaibab stated that NRE activities are absorbed by employees with an already heavy workload.

Budget: No budget for these activities on the Kaibab. The Coconino is apparently stressing education more lately; last year there was no budget, but this year \$5,000 is earmarked for environmental education.

Region 4

Regional Office

Audience: The Regional Office targets teachers and resource specialists with its NRE program. This region takes a different approach to education than Region 1, which primarily targets school-age children. At the Regional Office level at least, Region 4 attempts to "teach the teachers."

FTEs: 1/4

Budget: \$11,400

Forests

Audience: There was considerable variation in the perceived audience for each Forest's NRE program. For instance, the Wasatch-Cache National Forest stated that its audience is the one-million-plus population of the Wasatch Front; in contrast, the Fish Lake National Forest limited its audience to "all third-graders in Sevier County" for one program and "visitors to Fish Lake Basin" for the other. Most of the other units responding to the survey targeted students in grades K-6.

FTEs: Most units responding to this question have from 1/4 to 1 FTE who is responsible for NRE programs. Some Forests have no program at all, leaving it up to individual Ranger Districts to conduct programs. Many of the programs in Region 4 depend heavily upon volunteer, seasonal, and part-time employees.

Budget: Most units have no funds allocated for education programs. Money comes from specific projects or cooperators. Overall, budgets ranged from none to \$22,000.

Region 5

Regional Office

No Response

Forests

Audience: Region 5 Forests, quite understandably, had a diverse audience, ranging from only sixth graders to the 22 million who visit the Lake Tahoe Basin each year. Most units responding to the survey had a different target audience for each activity, rather than a general audience for their NRE program.

FTEs: Region 5 Forests and Districts also had more personnel working on NRE than the other regions. No unit stated it had fewer than one FTE, and most employ in the area of a half-dozen strictly for NRE purposes.

Budget: The numbers were not reported consistently, as some units appear to have counted salaries, while others did not. Responses to this item ranged from \$2,500 to \$270,000.

Region 6

Regional Office

Audience: Forest Service personnel.

FTEs: One GS-12

Budget: \$18,500 over salary

Forests

Audience: All ages and user groups

FTEs: Varied greatly. The Gifford Pinchot reported 12, while the other Forests reported anywhere from none to several.

Budget: Again, this answer varied from none on some Forests to \$200,000 on the Gifford Pinchot; however, the Gifford Pinchot has Mount St. Helens and its interpretive facilities, which the other Forests lack.

Region 8

Regional Office

No response

Forests

Audience: Mostly students, teachers, members of industry, or civic groups.

FTEs: This Region showed the largest variation of any that responded. The Chattahoochee-Oconee response stated no FTEs were responsible for NRE, while the Ozark-St. Francis said 15.5, the highest listed in any response.

Budget: From none on several Forests to \$385,000 on the Ozark-St. Francis.

Region 9

Regional Office

No Response

Forests

Audience: Primarily grade-school students, some camp groups and church organizations.

FTEs: From none to "at least 10 to 15 FTEs" on the White Mountain NF.

Budget: The White Mountain considered all Public Affairs activities to be education activities, so the budget was stated at \$500,000. This is the highest stated by any responding unit, but the others did not include the entire Public Affairs budget. Most other respondents listed "none" or "minimal" budgets.

Region 10

Regional Office

Audience: Virtually all visitors to Alaska traveling aboard ferries and cruise vessels, and older Americans enrolled in Elderhostel Marine Highway education programs through the University of Alaska.

FTEs: Six

Budget: \$300,000, including \$20,000 of cooperator donations.

Forests

Audience: Schools and church groups (and "movers and shakers").

FTEs: Minimal; none on the Chugach, .25 on the Tongass.

Budget: Nothing allocated to NRE.

Research Stations

Audience: More sophisticated than at the Regional or Forest level; mainly graduate students, teachers, and resource professionals.

FTEs: Varied from none to one full-time position; information transfer is part of each scientist's job.

Budget: Varied from zero to \$40,000.

Washington Office

Audience: Mostly internal, Congress, and cooperators.

FTEs: Up to two, depending on the responding unit.

Budget: Up to \$50,000, again depending upon the respondent.

2. Identify any coop/partnership/interagency activities. Indicate which of these have formal agreements.

Region 1

Regional Office

The Regional Office recently co-sponsored and co-funded a workshop on conservation education in Missoula. The workshop was intended to bring together all the diverse, yet related, groups in western Montana that are actively involved in conservation education. These folks represented groups of national stature (e.g., National Wildlife Federation), local prominence, school districts, private organizations (e.g., Glacier Institute), and agencies (Montana Dept. of Fish, Wildlife, and Parks). They have an informal working agreement with the University of Montana, and we worked with them to make this workshop a success.

In recent years, Region 1 has enjoyed informal cooperative working agreements with school districts, the University of Montana, several specialized research stations located in Montana (e.g., Yellow Bay on Flathead Lake) and the state fish and game agencies.

Forests

Again, there was a range of answers to this question. Many units had no formal cooperative agreements, instead dealing with various audiences on an informal basis. Curiously, some of the Districts had more formal agreements than either the RO or the Forests; one Ranger District, the West Fork District of the Bitterroot National Forest, has four formal agreements with various publics, while the Regional Office mentioned only one. Cooperation exists between the Forest Service and other federal agencies, state agencies, interest groups, and, particularly, universities and school districts. One interesting partnership is that between the Moose Creek District of the Nez Perce National Forest and Winchester Arms Company. The two have a challenge cost-share agreement to produce a wilderness hunting brochure.

Region 2

Regional Office

Region 2 is involved in a partnership project entitled the "Wyoming Conservation Connection," headquartered at the University of Wyoming. Eleven federal and state agencies and professional societies participate in the program, providing a statewide outdoor education newsletter, natural science workshops, on-site coaching for teachers and children, and special workshops.

Forests

Forests in R-2 listed several partnerships with school districts, Elderhostel programs, scouting groups, parks, associations, universities, and other federal and state agencies. The Conservation Connection was mentioned by one Forest.

Region 3

Regional Office

Several cooperative ventures were mentioned by the RO. The Southwestern Region and the New Mexico Museum of Natural History have co-produced three traveling museum exhibits which have been viewed by over 900,000 visitors in the last 5 years. The region is also involved in a partnership with a large scouting group to create a conservation group.

Forests

Both the Kaibab and Coconino National Forests listed several partnerships, both formal and informal, with civic groups, state agencies, National Parks, and businesses.

Region 4

Regional Office

Region 4 has cooperative agreements with the Idaho Society for Energy and Environmental Education; Nevada Natural Resource Education Council; Wyoming Conservation Connection; and Sevier County Soil Conservation District. Region 4, on the whole, relies more heavily on formal agreements than does Region 1, with only one regional formal agreement.

Forests

The National Forests in Region 4 mirrored the Regional Office's penchant for formal agreements, and had many informal partnerships as well. These partnerships existed with

school boards, scouting groups, chambers of commerce, and other agencies. The Ashley National Forest has a formal partnership with Chevron to construct a fully-accessible interpretive trail.

Region 5

Regional Office

There are no formal agreements at the regional level. However, eleven state and federal resource-based agencies in California have formed the Interagency Natural Resources Marketing Council to "foster and promote awareness, education, appreciation and wise use of the benefits, opportunities and roles of California's natural, historical, and cultural resources." This is being carried out mainly through the State Office of Tourism via meetings and conferences, and through an interagency brochure dealing with outdoor recreation opportunities on public lands. This brochure will be distributed through offices of tourism, chambers of commerce, agency offices, and visitor centers.

Forests

Many agreements/partnerships were listed, but most were informal. Most were with school boards or private industry councils.

Region 6

Regional Office

The RO listed one formal agreement, with the YCC, and 9 informal agreements with various youth programs, workshops, and state programs.

Forests

Forests in Region 6 listed many formal and informal agreements with corporations, environmental groups, school districts, etc.

Region 8

Regional Office

No response

Forests

Mostly informal agreements, but a few formal ones with state forestry agencies, PLT, and industry. The informal agreements were primarily with school groups, civic groups, etc.

Region 9

Regional Office

No response

Forests

Several listed PLT; other agreements, formal and informal, exist with user groups, education groups, and state agencies.

Region 10

Regional Office

Formal agreements with Alaska Elderhostel, State of Alaska, and several cruise lines and sightseeing organizations. More than most ROs.

Forests

None on the Tongass; the Chugach participates in partnerships with scout groups, school districts, work centers, and other interested groups.

Research Stations

Mostly with school groups or PLT. Rocky Mountain Station has an agreement with *Forestry Research West*, a quarterly magazine describing current research. The Southeastern Station has an agreement with the Acid Rain Foundation to produce educational materials for use by science teachers on the effects of air pollution on trees.

Washington Office

PLT, schools, and other federal agencies.

3. Suggest where you think Natural Resource Education in the Forest Service should be heading.

Region 1

Regional Office

The Regional Office indicated that, in order for the Forest Service to move strongly into conservation education, we need policy and funding support from the top down. They stated that nationally, it would be relatively easy to expand the watchable wildlife program to include conservation education as a natural offshoot. Full-time folks are needed to pursue this task, and they need some experience and training. The Region said we also need better information about public needs and wants in this area. **"In the eyes of many folks in the general public, the Forest Service has the right people and the right places to fill the void in conservation education that now exists. We should move strongly to fill that void on a national basis in all aspects of conservation education."**

Forests

Almost universally, there was a call for more emphasis on education programs. This includes more commitment at the Forest Supervisor and Washington Office levels, budgeting for education programs, and legitimizing such programs by formally stating their importance. In addition, it was suggested that the agency needs to become more proactive in dealing with education needs, and planning such efforts instead of reacting to them out of necessity. Some suggestions included: recruitment of experienced teachers, making education part of every employee's job, emphasizing existing programs instead of "reinventing the wheel," and including natural resource education in the recreation program and budget. One interesting concept advanced by the Moose Creek District of the Nez Perce National Forest called for a course on proper outdoor behavior, on the order of hunter-safety training, for all Forest users.

Region 2

Regional Office

The RO stated that field-level comments identify environmental education as something the Forest Service should do better, perhaps even regaining the leadership position it had in the 1970s. However, they noted that due to budget and program emphasis, a return to those days is unlikely. Region 2 feels that future programs will probably retain a teacher emphasis, delivered through cooperative systems.

Forests

Forests in R-2 stressed interpretation and cooperation with other agencies and publics. Teacher workshops were mentioned as perhaps the most efficient, effective way to reach a large number of people. The Rio Grande made the comment that their program had gotten people involved in the Forest Planning process. An underlying theme in R-2 seemed to be the desire for the Forest Service to regain the position of leader in conservation, wise use, and protection of natural resources through a strong, active role in environmental education.

Region 3

Regional Office

The RO in Region 3 had several interesting observations concerning NRE. They commented that most environmental education programs are classroom-oriented, while the best possible classrooms are forest environments, and we should be getting urban populations out on the land. **"We do not value what we do not understand."** Another observation was that Forest Service environmental education is usually oriented toward grade schools, and interpretive programs are geared for adults. They suggest creating education programs for all age groups. One of the most interesting comments in the survey came from this response: **"Many educators and members of special interest groups view 'natural resource education' instead of 'environmental education' as defensive wording on the part of the agency. Separating 'our kind' of education from other environmental education programs seems to further promote the now tiresome haggling between conservationists and preservationists...the challenge of these programs is to produce a citizenry that is concerned about how we use our forests and public lands. The best environmental lessons do not come from the mouths of experts, but from what people see and touch in the forest."**

Forests

The two Region-3 Forests echoed the call by most other regions for more emphasis on education for students and more funding and staffing for the Forest Service. The Kaibab indicated a need to reach nontraditional forest user groups (the new immigrants).

Region 4

Regional Office

The Regional Office feels that Natural Resource Education is headed outward, toward more partnerships with external entities. This is reflected by the number of partnerships, formal and informal, that exist throughout the region. A strong effort is being made to train educators and interpreters in NRE in Region 4. The Region feels there is a great opportunity to foster NRE programs in organization camps (scouts, churches, etc.) under special use permits.

Forests

Units responding to this item were in agreement with the Regional Office in that they felt it was important to train educators to teach young people. Programs which produce "multiplier effects" should be emphasized.

The Fish Lake National Forest stated that NRE and other outreach programs should be pointed toward nontraditional forest users, the urban and suburban residents. "We seem to spend most of our time talking to the same old people and only 'talk' to the nontraditional users through appeals or congressionals."

The Caribou National Forest respondent believes that NRE programs should become line items of Human Resource Programs, along with their own funding and administrative resources to match contributions by cooperators and volunteer employees.

Region 5

Regional Office

The Region 5 RO suggests a national cooperative venture with a national education organization such as state superintendents of schools, a conservation organization, and the Forest Service, in order to develop natural resource teaching units and materials for all levels of school. The RO would also like to see a trained NRE coordinator on each Forest in the nation.

Forests

Budgeting for NRE programs was high on every unit's list. Some respondents went as far as listing activities "pre-budget-cut" and "post-budget-cut." Variations in yearly budgets were blamed for a poor Forest-Service image: "Being so unreliable has a negative effect on the Forest Service image. They can never count on us to be there. Without designated line-item budgeting for NRE, it will continue as an on-again, off-again program."

One respondent indicated that the Districts understand the need for NRE, but that it is not fully appreciated at the Supervisor's Office level.

The Los Padres National Forest has its education programs split between Human Resources and Recreation and Interpretive Services.

Region 6

Regional Office

The RO suggested that the NRE program should be more aggressive, that it should deal with the management aspects of NRE. It was recommended that national direction be kept to a minimum, in contrast to some other regions who wanted NRE made a national program. Region 6 pointed out that the same strategy cannot be applied all over the country. They suggested that management provide the necessary training and tools to do a professional job. They suggested that the Forest Service "recognize that PLT is not the only game in town," in one of the few criticisms of that program in the survey.

Forests

There was quite a bit of skepticism on the part of the Forests and Districts concerning NRE. They felt that, until the budget process takes note of the importance of the program, we in the Forest Service are "kidding ourselves" about it. Region 6 echoed the nationwide call for more money and personnel, and more emphasis on the part of upper management, for NRE. A couple of specific proposals were: (1) Programs should give information which shows not only a specific message, but includes examples of the cause-and-effect relationships between resources; and (2) To empower each District to provide leadership and community education and relations, each unit should become highly involved in local community activities, school programs, etc. It is through this kind of involvement and numerous one-on-one contacts that the agency's mission is carried out.

In a very timely response, the Rigdon RD of the Willamette NF stated that the Forest Service should be educating the public on how cannabis production and methamphetamine by-products will be dealt with on National Forest lands.

Region 8

Regional Office

No response

Forests

It was suggested that the Forest Service work with educators nationally to make NRE a part of high-school curriculum. The Chattahoochee-Oconee recommended seeking private sponsorship of environmental education programs. In a departure from the strategy backed in most responses, the Tiak Ranger District of the Ouachita National Forest suggested that personnel in natural resource management should visit local schools to make presentations, rather than training teachers to do it. An interesting quote came from the Chattoga District of the C-O National Forest: **"A majority of the visiting public still thinks we are the Park Service and all we do is fight fires."**

Region 9

Regional Office

Forest Service should concentrate on two areas of NRE: basic ecology and what the Forest Service does as a land manager.

Forests

The FS should try to reach students and the elderly, as well as legislators and teachers. Utilize the non-profit sector. We need a bigger urban presence. The Mark Twain National Forest summed up the responses to this survey item better than any other: **"By far the most important point is, if we're going to do it, let's do it right. NO MORE UNFUNDED INITIATIVES, PLEASE! IF IT'S GOING TO BE AN ADD-ON JOB FOR PUBLIC AFFAIRS, FORGET IT!"**

Region 10

Regional Office

"Empower visitor centers to become centers of learning during the off season...consider moving the NRE program into the Interpretive Services program where there is an infrastructure, facilities, and expectations by our customers (in some Regions)."

Forests

Better organization and funding are needed. More partnerships with various groups. Start at a young age. Two districts on the Tongass, the Petersburg and the Thorne Bay, had very different opinions on what NRE should cover. The Petersburg called for **"emphasizing information about the resources, not selling our management."** The Thorne Bay's comment was, **"Tell the public more about our management practices."**

Research Stations

Most Research Stations responding supported an enhanced NRE program. They pointed out the need for training for teachers in natural resources. The Southeastern Station said, **"Demand among teachers is virtually unlimited...the demand represents an opportunity and**

a problem. Supplying the materials needed through U.S. Government publications would probably require a many-fold increase in our publications budgets. We simply are not accustomed to turning out publications with potential audiences of students numbering in the hundreds of thousands." Research Station responses typically focused on publications, as could be expected. While most stations said that education should be focused on teachers or graduate-level students, the Northeastern Station said that it should target the very young.

Washington Office

The WO recommended getting a consistent definition of what NRE is, targeting young people, and providing easy access to information for everyone in the FS. Also pushed for additional funding and staffing to do the job.

4. Describe briefly two or three of the BEST projects going on now in your unit that the National Task Force should know about.

Region 1

Regional Office

- a) Animal conservation education sessions on the Custer National Forest, Red Lodge District. These include exposure to Project Wild and Project Learning Tree materials.
- b) Lolo National Forest wildlife appreciation program -- begun in 1989 and is run by a full-time biologist assigned to this area.
- c) Co-sponsoring and support for a statewide conservation education "get-together" in June 1990. This brought together virtually everyone doing active conservation work in western Montana. On the basis of this meeting, it appears there will be a major "umbrella" organization developing at the University of Montana to provide a link and network for all groups in the state.

Forests

In addition to those mentioned by the Regional Office above, many programs were lauded by the responsible units. Such efforts include presentations to church and school groups, Project Learning Tree (mentioned by several units), hunter and wilderness-user education sessions, fishing derbies, interpretive services, and lectures. Two of the more innovative programs included: (1) an Earth Day program conducted by the Wisdom District of the Beaverhead National Forest, which consisted of an Earth Day kit (with lesson plans, art projects, etc. to be done by the students prior to Earth Day) and presentations to local schools on recycling, biodiversity, pollution, animal extinction, etc.; and (2) the use of Montana State University teaching students to team-teach resource education programs to local grade-school children, providing experience for the prospective teachers and saving money for the Bozeman District of the Gallatin National Forest.

Region 2

Regional Office

The Wyoming Conservation Connection (see previous mention under question #2).

Forests

Some interesting projects were mentioned. "Choices," a program sponsored by the Black Hills NF with Custer, South Dakota schools. This is a focused environmental education program, the cornerstone of which is a field day for students in grades 7 and 8. Students have a choice of hands-on environmental learning activities, ranging from fire and timber to water and wildlife. The Black Hills also has a cultural resource awareness program designed to give the public an awareness of past human history. Others mentioned were Project Learning Tree and some Earth Day activities.

Region 3

Regional Office

The response from Region 3 covered special projects in its entirety. Some of the most notable were the Ghost Ranch Living Museum on the Carson NF and the partnership between the RO and the New Mexico Museum of Natural History.

Forests

Both Forests mentioned a program called "Impact Monster," wherein fourth- through sixth-grade students are taught environmental ethics through role-playing (flower, rock, tree, destructive camper). There was no indication of whether this is a regional program or not, but that is likely since both Forests mentioned it.

Region 4

Regional Office

The RO mentioned the Alpine NRE Conference, which provided training for agency interpreters, and a couple of projects carried out by individual Forests. Few activities were conducted at the Region level in Region 4; most activities were at the Forest level.

Forests

Nearly every Forest in Region 4 conducted interpretive activities; some were national programs, such as Tread Lightly or Leave No Trace. Others were Forest-specific environmental education programs. The Caribou listed several interpretive services, including a formal environmental education exercise called Magic Mountain. For the past two years, the Pocatello District and the Forest have co-sponsored this event with the Experience-Based Career Education Department of School District 25 in Pocatello. This effort attempts to acquaint 100 high-school students to the land management planning process and the challenges of resource allocation decision-making. Several other specialists from state and federal agencies have assisted in the program.

Region 5

Regional Office

No answer given.

Forests

Aside from the typical interpretive workshops, there were a few interesting items. The Klamath is sponsoring a "Steelhead in the Classroom" program in which grades 4-6 raise steelhead from eggs to release-sized fish. The Mariposa District of the Sierra NF has a partnership with a local realtor for placemats with federal agency information, recreation, and fire prevention messages printed on them to be used in local restaurants and motels. Fire Management on the Eldorado has entered into an agreement with Safeway stores to print fire prevention messages on shopping bags. The Placerville District of the Eldorado listed, as two of its best projects, (1) education of its own employees about forest management issues, and (2) New Perspectives field trips. This last is a good example of educating people within the Forest Service rather than concentrating only on those outside the agency.

Region 6

Regional Office

Reformatting the Forest Service's *Investigating Your Environment* educational material. This consists of about 35 individual lesson plans, plus about as many teaching aid sheets. Each Region of the Forest Service will receive a camera-ready set of the materials, so the Region can add Region-specific information. In Region 6, the intent is to approach the Pacific Northwest National Parks and National Forests Association to act as a seller of the material.

The *Careers in the Forest Service* instructional program is under contract.

Forests

The Mount St. Helens Visitor Center, and the Wallowa Mountains Discovery Center.

Region 8

Regional Office

No response

Forests

Project Learning Tree was a big hit in R8. Two others of interest were the challenge grant cost-sharing project between the C-O and the National Wild Turkey Federation, and "Discover the Forest," a set of environmental education games put out by the Sycamore District of the Ozark-St. Francis.

Region 9

Regional Office

No response

Forests

Mentioned were (again) PLT and several Smokey-and-Woodsy sessions, usually put on by the Districts. The Kenton District of the Ottawa NF is working with two private groups, the Kellogg Foundation and the McCormick Wilderness Advisory Committee, to establish a Wilderness Stewardship School. That District is also developing a Wetland Ecosystem Interpretive Trail, in partnership with the local chapter of Wildlife Unlimited.

Region 10

Regional Office

Tongass Marine Highway Shipboard Forest Interpreter Program, conducted aboard the Alaska State ferries for the past 20 years; Elderhostel Marine Highway Education Program, in which the FS conducts natural history and management classes on the ferry between Bellingham, WA and Juneau, AK.; Cruise Ship Training and Assistance Program, in which the FS assists the cruise ship industry in training visitors to Alaska.

Forests

An outdoor education program in Seward and the Portage Glacier Visitor Center were mentioned, but no details were given.

Research Stations

One project of interest is the Southeastern Station's URBAN TREE HOUSE project, in which a national prototype of an inner-city forestry education facility will be built in cooperation with other regions, the City of Atlanta, Georgia-Pacific, Georgia Forestry Commission, NC A&T University, and the local neighborhood. The landscaping in this "tree house" will take visitors from the parking lot through forest succession to a climax species "forest." Another is "Gypsy Moth in the Classroom," a program conducted by NA S&PF, which educates students and their parents on the gypsy moth problem.

Washington Office

Forest Pest Management puts out several newsletters and leaflets for education purposes. Interpretive Services has a proposal with the Caribbean National Forest to develop an environmental education program with Puerto Rico. And Watershed & Air have several posters, brochures, and awards directed toward NRE.

Who Responded

Region 1 - Northern Region
Regional Office Beaverhead National Forest Supervisor's Office Wisdom Ranger District Bitterroot National Forest West Fork Ranger District Clearwater National Forest Supervisor's Office Custer National Forest Supervisor's Office Beartooth Ranger District Gallatin National Forest Supervisor's Office Gardiner Ranger District Bozeman Ranger District Livingston Ranger District Big Timber Ranger District Hebgen Ranger District Kootenai National Forest Supervisor's Office Nez Perce National Forest Moose Creek Ranger District

Region 2 - Rocky Mountain Region
Regional Office Arapaho-Roosevelt National Forest Supervisor's Office Bighorn National Forest Supervisor's Office Black Hills National Forest Supervisor's Office Nebraska National Forest Supervisor's Office Rio Grande National Forest Supervisor's Office Routt National Forest Supervisor's Office

Region 3 - Southwestern Region
Regional Office Coconino National Forest Supervisor's Office Kaibab National Forest Supervisor's Office

Region 4 - Intermountain Region
Regional Office Boise National Forest Supervisor's Office Caribou National Forest Supervisor's Office Fish Lake National Forest Supervisor's Office Humboldt National Forest Supervisor's Office Toiyabe National Forest Supervisor's Office Wasatch-Cache National Forest Supervisor's Office

Region 5 - Pacific Southwest Region
Regional Office Angeles National Forest Valyermo Ranger District Arroyo Seco Ranger District Eldorado National Forest Supervisor's Office Placerville Ranger District Inyo National Forest White Mountain Ranger District Klamath National Forest Supervisor's Office Lake Tahoe Basin Management Unit Los Padres National Forest Supervisor's Office Sierra National Forest Minarets Ranger District Mariposa Ranger District

Region 6 - Pacific Northwest Region	
Regional Office	
Colville National Forest Kettle Falls Ranger District	
Fremont National Forest Supervisor's Office	
Gifford Pinchot National Forest Supervisor's Office	
Malheur National Forest Supervisor's Office	
Mt. Hood National Forest Supervisor's Office	
Ochoco National Forest Supervisor's Office	
Okanogan National Forest Supervisor's Office	
Siskiyou National Forest Supervisor's Office	
Siuslaw National Forest Supervisor's Office	
Mapleton Ranger District	
Umatilla National Forest Supervisor's Office	
Wallawa-Whitman National Forest Supervisor's Office	
Wallowa Valley Ranger District	
Wenatchee National Forest Naches Ranger District Entiat Ranger District	
Willamette National Forest Supervisor's Office Rigdon Ranger District Blue River Ranger District Oakridge Ranger District Detroit Ranger District McKenzie Ranger District	

Region 8 - Southern Region	
Chattahoochee-Oconee National Forest Supervisor's Office Chattooga Ranger District	
George Washington National Forest Supervisor's Office	
Francis Marion-Sumter National Forest Supervisor's Office	
Ouachita National Forest Tiak Ranger District	
Ozark-St. Francis National Forest Supervisor's Office Sycamore Ranger District	

Region 9 - Eastern Region	
Regional Office	
Allegheny National Forest Supervisor's Office	
Chippewa National Forest Supervisor's Office	
Green Mountain National Forest Supervisor's Office	
Hiawatha National Forest Supervisor's Office	
Mark Twain National Forest Supervisor's Office	
Monongahela National Forest Potomac Ranger District	
Ottawa National Forest Kenton Ranger District Ontonagon Ranger District	
Shawnee National Forest Supervisor's Office	
Superior National Forest Supervisor's Office	
Wayne-Hoosier National Forest Supervisor's Office	
White Mountain National Forest Supervisor's Office	

Region 10 - Alaska Region	
Regional Office	
Chugach National Forest Supervisor's Office	
Tongass National Forest Ketchikan Area Wrangell District Petersburg District Thorne Bay District	

Research Stations	
Coweeta Hydrologic Laboratory	
Forest Products Laboratory	
Intermountain Research Station	
Missoula Technology and Development Center	
North Central Forest Experiment Station	
North Eastern Forest Experiment Station	
Pacific Southwest Forest & Range Experiment Station	
Rocky Mountain Forest & Range Experiment Station	
Southeastern Forest Experiment Station	
Southern Forest Experiment Station	

Washington Office	
Cooperative Forestry	
Forest Pest Management	
Interpretive Services	
Public Affairs	
Watershed and Air	

Northeastern Area, State & Private Forestry	

Appendix VI. Key Reviewers

Key WO Staff Contacts

Jerry Coutant, Recreation
Chip Cartwright, New Perspectives
Elizabeth Estill, Director, Recreation staff
Susan Hess, Director, Public Affairs Office
Wilbur See, Assistant Director, Human Resource Programs
Janet Sledge, PAO, Environmental Education and Woodsy Owl

Forest Supervisor Panel Members

Robert S. Devlin, R-6, Umpqua National Forest
Steve Fitch, R-8, National Forests in Florida
Bob Harris, R-5, Lake Tahoe Boise Management Unit
R. Kenneth Holtje, R-9, Hiawatha National Forest
Coy Jemmett, R-3, Prescott National Forest
Darrel Kenops, R-2, Black Hills National Forest
Ernie Nunn, R-1, Helena National Forest
Dave Rittersbacher, R-4, Boise National Forest
Mike Rogers, R-5, Angeles National Forest
Bruce Van Zee, R-10, Chugach National Forest

Educational Consultants

Susan Holtje, State of Michigan
Jon Nelson, State of Washington

Partner/Consultants

Jane Difley, New England Director, American Forest Council
Paul McCawley, Extension Service, Washington D.C.
Kathy McLaughlin, Director, Project Learning Tree, American Forest Council
Mimi Wickless, Director, National Arbor Day Foundation

Appendix VII. Draft Reviewers

National Forest System

Region 1

Will Clark, Custer National Forest
Jack De Golia, Beaverhead National Forest
Darrel Kenops, Custer National Forest

Region 2

Ed Nesselroad, Regional Office

Region 3

Chuck Bazan, Regional Office

Region 4

Wally Shiverdecker, Regional Office

Region 5

Douglas Elliott
Richard Gibson, Six Rivers National Forest
Marilyn Hartley, Regional Office
Kristi Kantola
Ann Westing

Region 6

Bob Bartholomew, Siuslaw National Forest
Hugh Black, Regional Office
Mark Boche, Malheur National Forest
Jose Cruz, Deschutes National Forest
Norm Day, Regional Office
Steve Deitemeyer, Rogue River National Forest
Bob Devlin, Umpqua National Forest
Marlene Finley, Siuslaw National Forest
Nancy Graybeal, Gifford Pinchot National Forest
Anne Heisler, Regional Office
Norm Hesseldahl, Siuslaw National Forest
Kathryn Holleran, Mt. Hood National Forest
Karen Hughes, Umpqua National Forest
Wendell Jones, Regional Office
Michael Kerrick, Willamette National Forest
John Marker, Regional Office
Glenn McLaughlin, Regional Office
Robert Meurisse, Regional Office
John Nunan
Tom Nygren, Regional Office

Region 6 (continued)

Neil Opsal, Regional Office
Jim Pollock, Regional Office
Rich Reeves, Regional Office
Cynthia Reichelt, Colville National Forest
Rick Ross, Regional Office
Earle Rother, Umatilla National Forest
Ed Schultz, Colville National Forest
Ted Stubblefield, Olympic National Forest
Jim Unterwegner, Regional Office
Donald Virgovic, Regional Office

Region 8

Stan Adams, Regional Office
Steve Fitch, National Forests in Florida
Jennie Freidhof, Ouachita National Forest
Larry Hedrick, Ouachita National Forest
Mike Lannon, National Forests in Texas
Al Pepper, Regional Office
Cynthia Snow, Daniel Boone National Forest

Region 9

Craig Whitney, Regional Office

Region 10

Kathy Foss
Wayne Nichols, Regional Office

Research

Pacific Northwest Station

Dick Woodfin, Portland

Pacific Southwest Station

Dr. Alan Ewert, Riverside
Kathy Harsen, Redding
Dr. Nancy Rappaport, Berkeley

Forest Products Laboratory

Colleen Morfort

Washington Office

Katherine Allen, Human Resource Programs
Douglas MacCleery, Timber Management

State Foresters

Raymond Aslin, Kansas
Burnell Fischer, Indiana
Thomas Dupree, Rhode Island
James Garner, Virginia
Bill Moody, Alabama
Gerald Ross, Missouri

Other Cooperators**District of Columbia**

Jane Difley, American Forest Council
Richard Reid, Society of American Foresters

Delaware

Dorris Morris, Warner School, Wilmington

California

Penny Saletta, GATE Education Coordinator

Colorado

Judith Roughton, Swanson Elementary,
Arvada

Florida

Ms. Bozeman, Fort Clarke Middle School,
Gainesville
Shelly Franz, University of Florida
Ray Mason, Division of Forestry

Idaho

Dr. Terry Armstrong, University of Idaho

Kansas

John Strickler, Extension State Leader

Michigan

Susan Holtje, Curriculum Specialist

Montana

Kathy Anderson, Project Learning Tree
Bob Briggs, Office of Public Instruction
Kurt Cunningham, MT Fish, Wildlife & Parks
Dr. Lee Metzger, University of Montana

Nebraska

Mimi Wickless, National Arbor Day Foundation

New Jersey

Lou Iozzi, Rutgers University

Oregon

Ernie McDonald, McDonald Communications,
Portland
Barbara Middleton, Oregon Forestry Education
Billie Jo Smith, Lincoln Co. School District

Virginia

Peg Friedel, Vienna Elementary, Vienna
Vicki Hodges, Vienna Elementary, Vienna
Lou Southard, Department of Forestry

Washington

Lynne Ferguson, Forest Protection Association
Jon Nelson, Curriculum Supervisor
Fred Poston, Extension Service

Appendix VIII.

Curricula and Proposed Natural Resource Conservation Education Program Components

The key components of program operation are the components described in Program Operation. Individual programs are identified for specific intended audience and education level. Within each component program, a specific focus, objective, appropriate messages, current situation, and identification of available resource books is identified. Components have been developed for the following education and audience levels:

- Preschool
- Kindergarten - 2nd Grade
- 3rd - 5th Grade
- 6th - 8th Grade
- Young Adults
- Adults

Program Components

A. Preschool

Focus: Trees

Objective: To introduce the role of trees in the natural world.

Messages:

- Being outside can be fun.
- Trees provide many useful products and perform many services.
- Trees are part of a healthy environment.
- I am responsible for a healthy environment.
- Trees, like people, are living things and have a life cycle.

Current Situation:

Opportunities Available:

Forest Service is currently negotiating with Headstart to develop curriculum for preschool based on Trees.

Curriculum Available:

- Some Project Learning Tree K-6 activities are adaptable for preschool use. PLT willing to work with USFS & Headstart for adaptations.
- Forest Service posters may be useful.
- OAEYC program Roots and Shoots and Rings and Things.
- Earth, Sea and Sky - Environmental Education Association of Oregon.

Resource Books Available:

Child Resources

A Tree is Nice
The Giving Tree
A Tree is to Climb
Berenstein Bears Moving Day
My Backyard Magazine
Science Land Magazine

Teacher Resources

50 Simple things that Kids Can Do to Save the Earth
Hands on Nature

Proposed NRCE Program Components:

- Head Start curriculum
- Sesame Street forest worker profile (with NASF)
- Update and aggressively market Woodsy Owl
- Adopt the "Treetures"
- Mr. Rogers segment on trees and the natural world.

B. Kindergarten - 2nd Grade

Focus: The Natural World

Objective: To explore the components of a natural environment and discover how plants and animals - including people - work together.

Messages:

- Exploring the natural world can be fun.
- The natural world is made of living and non-living things which form ecosystems.
- All living things need food, water, shelter and space in order to be renewable.
- Our personal environments are part of an ecosystem.
- We are responsible for caring for things in our environment.
- Our actions affect the natural environment.

Current situations:

Opportunities Available / Curriculum Available:

- Project Learning Tree and Project Wild activities
- National Wildlife Federation's Naturescope booklets
- Pools, Pipes and Puddles
- Mini Beasts and Butterflies
- OBIS and Sunship Earth
- Urban Treehouse
- Woodsy Owl Teachers Packet

Resource Books Available:

Child Resources

A Tree is Nice
The Giving Tree
A Tree is to Climb
Berenstein Bears Moving Day
A Tree is Born
How and Why Wonder Book of Trees
Thank the Trees
The Mountain That Loved a Bird
Where the Forest Meets the Sea
Ranger Rick Magazine
Chickadee Magazine

Teacher Resources

50 Simple Things That Kids Can Do To Save the Earth

Proposed NRCE Program Components:

A teacher kit including:

- Posters (Smokey set) with materials from the forest
- Games and/or directions for making games (lotto and chains)
- Seeds and cones from a variety of trees (localized)
- Leaves (laminated or pressed) from several tree species
- Directions for natural world scavenger hunts and urban safaris
- Bulletin board designs for living/non-living things
- Expand use of ecosystem picture cards
- List of local sources of tree seedlings

Teacher resource lists with books, videos, background information on ecosystems and living/non-living things

A teaching video, showing how to use the materials and how to play the games. Use real teachers and real children in the video.

Woodsy Owl teacher packet

Woodsy and/or Smokey buttons or stickers

Provide regional or state level inservice for teachers to provide added experience and/or background materials.

Forest Service staff co-sponsor and participate in Project Learning Tree and Project Wild Workshops.

C. 3rd - 5th Grades

Focus: Natural Communities

Objective: To discover the variety of natural communities on this planet, and learn how they function.

Messages:

- Exploring the communities around us can be fun.
- There are many natural communities in which humans live, work and play.
- People of different cultures value and use land and other resources differently.
- There is conflict and competition within natural communities.
- All parts of our ecosystems are interrelated.
- Because natural resources are limited we must learn to make decisions which conserve natural resources and reduce our individual impacts on natural systems.

Current situation:

Opportunities Available:

Many States have outdoor experiences for children in grades 3-5, Indian Guides, 4-H, Brownies, and Cub Scouts.

Curriculum Available:

Project Learning Tree, K-6
Project Wild, K-6
OBIS
Oregon Forest Education Program
Class Project
Global Releaf Curriculum Mini-Guide
Acclimatization
A Good Planet is Hard to Find
4-H Projects in many States
National 4-H materials (What's A Tree To Me)
Gypsy Moth workbook
State created material - such as Missouri Conservation Lessons
Audubon Adventures
Woodsy Owl Teacher packets
Discovery Channel and other nature T.V.
Smokey Bear Teacher packets
National Wildlife Federation - Ranger Rick's *Naturescope* series
Ag in the Classroom materials in some States
Forest Service posters
Forest Health Educational packet (Forest Ecology & Wilderness)
Gypsy Moth in the Classroom
Green Box
Project Life (Learning in Familiar Environments)
Soil Conservation Curriculum
Urban Treehouse

Resource Books Available:

Child Resources

Grandfather Tree
Paul Bunyan
Johnny Appleseed
Trees Every Boy and Girl Should Know
The Lorax
The Beaver Pond

The Young Naturalist
Big Tree
Berenstein Bears Nature Guide
A Tree Named ...
Ranger Rick Magazine
National Geographic series

Teacher Resources

50 Simple Things that Kids Can Do to Save the Earth

Proposed NRCE Program Components:

Assistance in revising PLT materials for this age group

A teacher's pack on communities including:

- Posters of variety of natural communities
- Games and/or instructions for making games
- Puzzles, hidden pictures and other worksheets
- Background information for teachers on a variety of communities
- Picture cards for use in games or on bulletin boards which illustrate components of a number of different ecosystems
- Posters showing the recycling process and how to set up a recycling center in the classroom or school
- Background information on recycling in natural systems and how recycling takes place commercially
- Take Pride in America awards applications
- Suggestions of class projects to undertake to conserve natural resources
- Record sheets to be used in a community study (both rural and urban versions) to guide students in identifying components of their community
- Directions for playing "The Web of Life" and "The Economic Web of Life" from Project Learning Tree
- A bibliography of books and audio-visual materials to use for background reading, as student references and as reading books
- Model for whole language approach using environmentally based materials

Tree cookie kit and paper recycling kits modeled on the Oregon Forestry Education Program kits

D. 6th - 8th Grades

Focus: Ecosystems

Objective: To explore the complexities of communities and ecosystems

Messages:

- There are exciting discoveries and careers in natural resources.
- Humans are part of local, regional and global ecosystems.
- Ecosystems are unique and diverse, containing renewable and nonrenewable resources.
- Good natural resource management sustains ecosystems.
- The products we want from our natural resources require us to make decisions which may necessitate trade-offs.

Current Situation:

Opportunities Available:

Expanding outdoor experience in some schools. Many opportunities in Scouts, 4-H, Campfire, Resident Outdoor School experience, etc.

Curriculum Available:

Project Learning Tree
Project Wild
Project Wild Aquatic
Oregon Forestry Education Program
OBIS
Living Lightly on the Land Curriculum
Class Project
Acclimatization
Global Tomorrow Coalition Lessons
Global Releaf Curriculum Mini-Guide
Investigating Your Environmental Materials (F.S.)
Ag in the Classroom materials in some States
Girl Scout/Boy Scout merit badges
4-H Forestry projects in many States
One Green Tree (Discovery Comic)
National Wildlife Federation - Naturescope series - Wetlands, Trees, Plants, Animals, Insects, etc.
Discovery Channel and other nature T.V.
Urban Safari
Forest Health Education Packet (Forest Ecology and Wilderness)
Decisions, Decisions Booklet of Activities
Stream Scene
Green Box
SCS Curriculum
Project LIFE
Resident Outdoor School materials
Old Growth Forest Management, Teachers Packet
Urban Treehouse

Resource Books Available:

My Side of the Mountain
The Man Who Planted Trees
The Lorax
Where the Red Fern Grows
The Yearling
National Geographic series
Swiss Family Robinson
Island of the Blue Dolphins
Understanding the Game of the Environment
Audubon and Peterson's Field Guides

Proposed NRCE Program Components:

Inter-city youth scholarship program("Send kids to Camp") for Jr High through High School. Kids receive paid work experience and general environmental education.

Mobile classroom ("Ecovan")

Strengthen program with Girl and Boy Scouts

Inter-city youth focus with Bill Cosby as spokesperson. Set up "Cosby Environmental Ed Center"

Strengthen modules available for use at Resident Outdoor School settings with or without Forest Service personnel.

E. Young Adults

Focus: Natural Resource management

Objective: To empower young adults to develop and practice a personal natural resource management ethic.

Messages:

- I can find peace and comfort in the out of doors.
- Actions based on my personal convictions can make a difference in my life and world.
- Diverse natural resource philosophies result in conflicting resource decisions.
- Each natural resource decision results in environmental, economic, and social consequences.
- A natural resource career is an exciting choice.

Current Situation:

Opportunities Available:

Further expansion of outdoor experiences in the non-formal education setting: Scouts; 4-H; YCC; Outward Bound; I can, We Can (Challenge courses); formal education field trips in wealthy or well-supported communities (time and money constraints); National Wildlife Summits; Audubon trips; SAF-sponsored camps and video on careers in natural resources.

Curriculum Available:

Project Learning Tree
Project Wild
Project Wild Aquatic
Oregon Forestry Education Program
National 4-H Forestry Invitational
National 4-H Forestry Recognition Program
4-H Projects in many States
Scouting Experiences
OBIS
Class Project
Global Tomorrow Lessons
Future Farmers of America
Forestry programs in schools
Vocational Educational Classes in Forestry
Urban Safaris

Stream Scene
Creative Controversy (cooperative learning strategies)

Resource Books Available:

Understanding the Game of the Environment
The Man Who Planted Trees
Sand County Almanac
Round River
Green Mansion (Tropical Eden)
In Wildness is the Preservation of the Earth
Managing Our Natural Resources - 1983 Yearbook of Agriculture
The Young Forester (by Zane Grey)
Born Free
Journals of Thoreau; Muir
Wooing the Earth
A God Within
American Forests Magazine

Proposed NRCE Program Components:

Conservation Leadership Conference and Scholarship programs

Strengthen support to existing programs (4H, Outward Bound) that meet NRE program goals. Provide facilities, easy access permits, trainers and other support as needed.

Expand environmental education camp programs using Job Corps program as models.

Utilize trained HS enrollees as trainers to work with younger students.

Natural Resource simulation models for use in high school social studies, economic, business, biology and life science classes.

Develop module on history of natural resource management.

F. Adults

Focus: Natural resource experiences

Objective: Enable adults to identify problems, collect information, understand natural resource conditions and trends, form opinions, draw conclusions, and make informed natural resource decisions.

Messages:

- Forests provide multiple benefits including opportunities for quality outdoor recreation.
- The natural resource decisions we make as a Nation today will create the world our children live in tomorrow.
- We must work together in partnership to balance the multiple demands for environmental protection, economic viability and public use of our Nation's natural resources.
- There is a wealth of interesting information on natural resources and the history of natural resource management.

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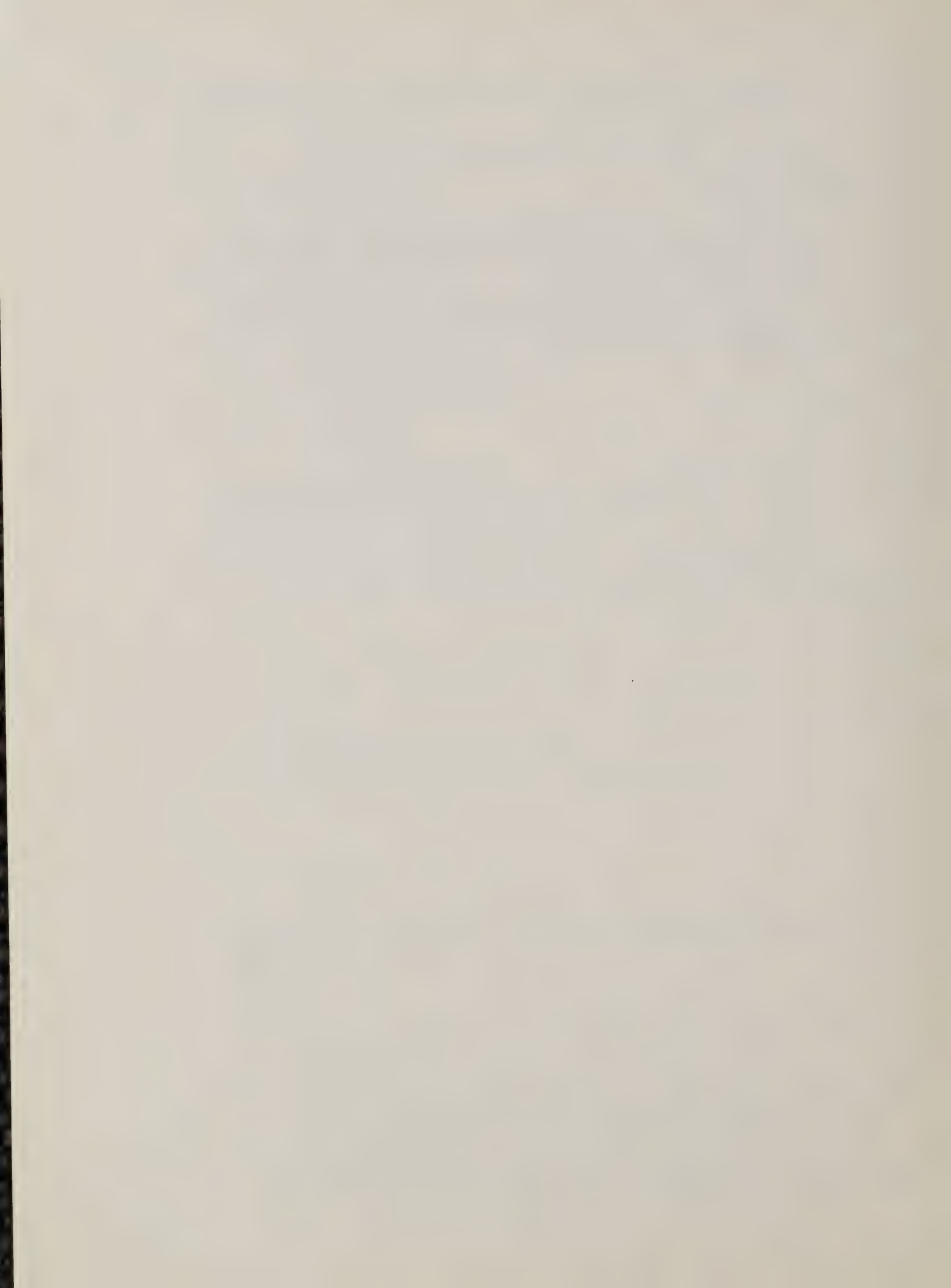
Current Situation:

Opportunities Available:

Outdoor experiences on family and individual vacations (National Wildlife, Safari Club international Summit, Audubon and Lindblad tours, Alaska Coastal Ships Treks); recreation and interpretation programs at local, state, and national forests and parks; Elderhostel; continuing education programs and correspondence courses; Audubon lecture series; television; magazines (National Wildlife, American Forests, National Geographic, Sierra Club Magazine and others); Sierra Club meetings and outings; trail meetings (AT, etc.) forest recreation (hunting, fishing, bird watching, etc.); and more.

Curriculum Available:

Teacher in-service training;
Scout Leader training;
Leadership roles in Scouting, 4-H, Project Learning Tree, Project Wild and others;
Audubon, Wilderness Society, and Sierra Club membership (meetings, publications and tips);
National Wildlife Federation Conservation Summits, Audubon Ecology Camps; and Elderhostel programs.



Appendix IX.

MacCleery Adult Education Proposal

PROPOSED FOCUS OF FOREST SERVICE NATURAL RESOURCES EDUCATION EFFORTS

It is suggested that the proposed content of Forest Service natural resources education efforts be expanded to include the following:

1. *Condition and Trends of U.S. Natural Resources*

Objective:

Seek to increase general public understanding of the basic conditions and trends of U.S. natural resources, particularly forests, rangelands, and associated wildlife, and of the public policies and other factors that have been most influential in shaping those conditions and trends over time.

Discussion

Although public interest in the environment is increasing dramatically, the public does not have a good understanding of the basic condition of U.S. natural resources--forests, wildlife, water, air quality, etc. Opinion polls indicate that many people believe that the condition of most resources, including forests, is deteriorating at a rapid rate. This has been the result of media stories that commonly focus on environmental "warts," rather than the overall health of the body.

In fact, the past few decades have seen a significant improvement in many components of our environmental heritage, including forests, most wildlife, the quality of surface water, streams and rivers, range conditions, air quality, soil erosion rates from farmland and rangeland, to name a few. Those improving trends did not happen by accident, but as a result of purposefully directed public policies and much effort by a large number of people.

If we are to develop informed public policies to address the real environmental issues that confront us, we must seek to improve the public's understanding of overall environmental trends and conditions. Before we as a society can make informed decisions about where we should go, we must seek to understand where we are, where we have come from, and how we got there. The Forest Service could help fill those large gaps which currently exist in most environmental education/awareness programs.

Graphics and other visual tools would be used where possible to illustrate natural resource trends -- forest trends: eg. growth, harvest, inventory, etc.; wildlife trends: eg. trends in numbers and variety of species, diversity, etc.; rangeland trends; watershed: water quality, soil erosion, etc.; recreation trends; and other trends, as appropriate.

As appropriate, this effort would also discuss the policies that were most influential in affecting those trends over time, eg. fire control, research in improving forest management and wood utilization, etc.

2. Forest Ecology and Changes in Forest and Rangeland Landscapes Over Time

Objectives:

To seek to gain a greater public understanding of the following:

1. The dynamic nature of our forests and other natural resources, their resilience in the face of natural and human-induced changes, and to illustrate how the forest and rangeland landscapes have responded to such changes over time.
2. The basic elements of forest ecology and plant succession, and of the role that natural disturbance factors, such as fire, played in the natural ecology of presettlement forests.
3. The role that ecologically based vegetation management practices can have in providing multiple benefits to society and in replicating the effects of such natural disturbance factors.

Discussion

The public is largely uninformed of the dynamic nature of forests and associated wildlife populations. They frequently view forests as static and never changing. This effort would focus on improving the basic understanding of forest ecology, the dynamics of plant succession and how it affects wildlife species, diversity and numbers over time and space. A correlary objective would be to improve public understanding of how the forest landscape has changed over the past few decades as a result of natural and human influenced factors.

The effort should also focus on how fire, windthrow, and other natural disturbance factors influence natural forest ecology. As appropriate for the audience and objective, it would also focus on how well-planned and executed forest management practices can replicate those natural influences and improve overall benefits to society.

In this way it would be supportive of the messages and direction being taken by New Perspectives.

The scale--national, regional, or local--and focus would vary depending on audience and objectives, as well as the natural and human history of the specific area being featured. The focus would be on how the visual forest landscape has changed over the years. The following dimensions would be illustrated:

- a) Natural History (What did it look like in presettlement times. What were the major factors which influenced presettlement forests and rangelands--natural and Indian set fires, insects, windstorms, etc.)
- b) History of Human Use and Management (Illustrate how post-settlement use and management has affected forest and rangeland landscapes over time)

3. Showcase the Best Examples of Contemporary Multiple-Use Management in Action

Objective:

To use case studies of effective multi-disciplinary management of public lands to gain a greater understanding of what multiple use means in real life situations. A subsidiary

objective would be to encourage the involvement of our own people in defining what it means on their forests and districts.

Discussion

The natural resource managers typically describes multiple use management in general terms. Often absent is a description of how the specifics of multiple use management are translated into practices on the ground. Forest Service literature sometimes even implies that multiple use management is an *end* in itself, rather than a *means* to achieve multiple objectives from a piece of land over time. Functionalism in Forest Service organization and budgets also encourages focus on single objectives.

The idea is to use case studies to put "flesh and blood" on the generalized and sometimes overused term "multiple use management."

Appendix to the MacCleery Adult Education Proposal (Appendix IX)

This Appendix provides more details in what might be included in Items 1 and 2, i.e. "Condition and Trends" and "Forest Ecology and Landscape Changes."

ITEM 1 -- CONDITION AND TRENDS OF U.S. FORESTS

This illustrates the possible focus of a national overview of the condition and trends of our forest resources. Similar efforts could focus on condition and trends at the regional and state levels and on the condition and trends of other resources, such as wildlife, rangeland, water, recreation, etc.

Executive Summary

Overview

- About 32% of the land area of the U.S. is forestland. This is about 75% of the forest cover that existed in 1600.
- Clearing for agriculture has been the dominant cause of the reduction in forest cover. Today, we have about the same area of forestland as we did in 1920, when the area of U.S. cropland stabilized.
- However, national figures mask significant regional shifts of forestlands into and out of agriculture. Beginning in the mid-1800's, marginal agricultural land in the East and South began to be abandoned as more productive farm lands in the Mid-west were opened up. Many of these abandoned lands reverted back to forest. This process continued into the 1900's and accelerated during the Great Depression.
- In addition to clearing for agriculture, the latter part of the 1800's saw a tremendous increase in the pressures placed on U.S. forests by a growing population and rapidly industrializing economy. Demand increased dramatically for wood for both residential and industrial energy, to provide industrial products and charcoal and to house a growing nation.
- From the 1880's to 1920, vast areas of the East, Mid-west, and South were logged, and often relogged. Logging was frequently followed by repeated uncontrolled wildfires, sometimes with serious loss of life and property.

Condition of U.S. Forests in 1900

- In the early 1900's, wildfire commonly consumed 40-50 million acres annually, an area the size of Virginia, West Virginia, Maryland, and Delaware combined.
- Timber harvest continued to set record levels in the late 1800's and early 1900's.
- Forest growth rates nationally were a fraction of harvest rates.
- No provision for reforestation was being made, due in part to the fact that abundant and readily accessible stands of high quality timber made investments in growing new forests

economically unattractive. Additional factors discouraging reforestation were the substantial risk that any reforestation investments that were made would be destroyed by fire, and to lack of knowledge of reforestation technique.

- Public concern over the depletion of our forests was the catalyst for the first national conservation movement in the late 1800's. The Forest Service was the product of that movement.
- Coinciding with public concern over our forests was a similar concern over the fate of many wildlife species, which were under merciless pressure from habitat destruction and from unrestricted sport and market hunting and use of wildlife products, especially feathers, in women's fashions.

Condition of U.S. Forests in 1990

It is a measure of both the inherent resilience of our forests, and of the success of the policies that were put in place in response to public concerns in the early decades of this century, that forest conditions over much of the U.S. have improved dramatically since 1900. As examples:

- The area consumed by wildfire has been reduced by more than 95%, from 40-50 million acres in the early 1900's to 2-4 million acres today--even in bad fire years.
- By 1986, growth was more than 3 1/2 times what had been in 1920. Nationally, forest growth rates have exceeded harvest rates since the 1940's, with each decade generally showing a greater margin of growth over harvest than the one preceding.
- By 1986, tree growth nationwide exceeded timber harvest by 37 percent.
- Since 1952, average net growth per acre has increased nationally by almost 70 percent. Net growth exceeds harvest in every region of the country, although the margin of growth over harvest varies considerably by region--with the greatest margin occurring in the North and Rocky Mountains, and the least in the South and Pacific Coast States.
- Even though the rate of timber harvest has increased by almost 40 percent nationally since 1952, the rate of forest renewal and growth has more than kept pace. In 1986, the volume of standing timber nationally was 24 percent greater than it had been 1952.
- The rate of tree planting has been increasing steadily since the 1960's. Virtually every year since 1984 has set a new record for tree planting. Planting on Federal and public land has historically kept pace with needs. Most of the increase in tree planting since the 1960's has been on private lands. Throughout the 1960's and '70's, the greatest increase in tree planting occurred on forestlands owned by industrial forest products firms. Since 1980, however, the owners of private, non-industrial forest lands have substantially increased their rate of tree planting.
- Wildlife has been another major success story. The numbers and variety of most forest related wildlife have improved dramatically since the 1930's.

Forest Policies Which Led to Improved Forest Conditions

A number of forest policies emerged as national goals and priorities in response to public concerns. The success of most of these policies depended upon effective cooperative relationships among

federal, state, local, and private sector efforts. The Forest Service was a key leader in promoting and catalyzing such cooperation and helping to focus it to achieve common goals.

The policies and priorities that had the greatest effect on the improved condition of our forests are the following:

- Protecting the forest from uncontrolled wildfire and insects by focusing on fire suppression, prevention, and public education;
- Improving the art and science of forest regeneration and management, including research, establishment of tree nurseries, and providing technical and financial assistance to forest landowners;
- Establishing and enhancing professionalism in forestry, through establishment of accredited forestry schools, professional societies, etc.;
- Improving the efficiency with which wood products are utilized in the woods, at the mill, and in end product applications;
- Improving the economics of forest management on private lands by improving economic incentives and removing tax and other disincentives;
- Conducting a periodic forest survey of trends in forest area, growth, harvest, mortality, and other parameters;
- Establishing the Forest Reserves (later the National Forests) for watershed protection and sustained timber production.

ITEM 2 -- THE ECOLOGY OF NORTH AMERICAN FORESTS

Early colonists in North America found a truly vast and magnificent forest. It is estimated that about 95 percent of New England was covered with forest. Except for the few areas cleared by Indians for agriculture, natural forest predominated. It is estimated that natural presettlement forest covered 950 million acres or about 43 percent of U.S. land area. In the East, the forest occupied a much larger percentage of the land.

Popular perception of the presettlement forest is that most of the area was comprised of extensive stands of large, ancient trees that were replaced only after death from old age had opened up the forest canopy to regeneration by young seedlings. This steady state or climax forest certainly did occur in some cases, but presettlement forests were exceedingly complex and dynamic.

Natural disturbance agents, such as wildfire, insects, disease, and wind storms had major influences on the age, species, composition, and nature of most presettlement forests.

Forest plant communities commonly go through a series of successional stages after wildfire or other disturbance, as sunloving "pioneer" species and communities are gradually replaced over time by species more tolerant to shade. Most presettlement forests consisted of a mosaic of plant communities in various stages of successional development, which varied depending upon the specific fire history of the area. Wildlife was well adapted to the changes brought by fire and other disturbances, and species and diversity shifted considerably over time in response to vegetation changes.

In the Northeast, huge areas of mature spruce/fir would periodically be attacked and killed by spruce budworm insect epidemics (on 60 to 120 year intervals). Such events were often followed by extensive wildfires which set the stage for forest regeneration.

In the South and central Midwest, oak and pine savannas occupied tens of millions of acres. These savannas were maintained by frequent groundfires (on 3-10 year intervals), caused naturally by lightning or set by Indians to maintain preferred habitat conditions for game and to reduce undergrowth and forest fuels. It is estimated that there is now more standing forest volume in many of these old savanna areas today than existed there during presettlement times.

Even in the moist and cool northern Lakes States, wildfires, although infrequent, were the predominant means of forest renewal over vast areas. Such fires occurred during periodic regional drought cycles, and often destroyed timber stands over areas of tens or hundreds of thousands of acres at a time.

In the forests of the Rocky Mountains and Pacific Coast, both natural and Indian-set fires had a major ecological influence on the age, species composition, and nature of forests. Early explorers reported that Indians used fire extensively to maintain preferred habitat, for signaling purposes and as a weapon of war against hostile tribes.

The influence of fire varied in the mountain West greatly from area to area depending upon climate, land form, aspect, and other factors. It varied from frequent, low intensity groundfires in the more arid and open forest types such as ponderosa pine, to infrequent but high intensity, stand-replacing crown fires in the more moist areas and north slopes (lodgepole pine and Douglas-fir types are examples).

Intense, stand killing fires might occur on a given area on a frequency of from 50 to 200 or more years. The wildfires in Yellowstone National Park in 1988 were a spectacular example of such stand replacing fires.

A remarkable set of photos of the presettlement forest landscape of the Black Hills of North Dakota was made in 1874 by a photographer accompanying the first exploration expedition into the area led by George A. Custer. These photos show a landscape subject to frequent burning. Early successional vegetation (such as aspen) is widespread. Evidence of older stands of ponderosa and lodgepole pine is uncommon. Photos taken a century later indicate that the landscape has changed dramatically due to the exclusion of wildfire for the last seventy years. The area in forest has increased and the forest is now predominantly mature ponderosa and lodgepole pine. The presence of aspen has been greatly diminished.

Although we do not have the same photo record everywhere, the story of the Black Hills is repeated in varying degrees in much of the Mountain West from the Rockies to the Sierra Nevada in California, and east side of the Cascades in Oregon and Washington.

Virtually all forest stands in the Rocky Mountains and Pacific Coast owed their origin to fire or other catastrophic disturbance, with the possible exception of some stands on the Olympic Peninsula of Washington and the coast of Alaska.

While the specific role and influence of fire in U.S. forests varied considerably in specific areas, the predominant influence of fire was pervasive. Over the eons, plant and animal species and communities have evolved complex adaptations to wildfire and other natural disturbances so common in North American forests. Such adaptations range from thick, fire resistive bark of many tree species, to species adapted to rapidly regenerate and grow in the openings and mineral soil created by wildfire.

Policy Implications

- 1) The important role that wildfire and other natural disturbance played in the natural ecology of U.S. forests is an important element in explaining the response of those forests to the extensive logging, land clearing, and human caused wildfire that occurred in the latter half of the 19th Century--and the resilience with which those forests later recovered from such disturbances.
- 2) An essential element in the development of effective strategies and prescriptions to manage forest vegetation and associated wildlife is an understanding of the natural ecology of those systems. This includes a knowledge of the adaptations of plant and animal species and communities to fire and other natural disturbances, so that management strategies recognize and are consistent with the ecological characteristics of the plant and animal communities they are designed to influence.

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